

San Bernardino County

**Reported Communicable Diseases
2001-2002**



**County of San Bernardino
Department of Public Health**

December 2004

Acknowledgments

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This report presents a summary of communicable diseases reported in San Bernardino County in 2001-2002. The contents are divided into 3 sections:

1. Tables of reported communicable diseases by age group and by race/ethnicity, and incidence of reported diseases preventable by immunization;
2. Graphs representing 10 to 20 year incidence and incidence rates per 100,000 population;
3. Special Disease Focus:
 - Results of the Juvenile Hall Get Tested Project
 - Local Health Department Response to Bioterrorism in the US
 - Hepatitis C Study
 - Norovirus: An Emerging Pathogen

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<http://www.sbcounty.gov>

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San Bernardino County Reported Communicable Diseases 2002

Introduction

The San Bernardino County Department of Public Health is charged by California law and San Bernardino County Code with protection of the health of the County's over 1.8 million citizens. To fulfill this responsibility, the Department carries out a broad and comprehensive public health program which includes public health services mandated by the State of California, a substantial range of personal health services requested by the people and chosen as priority matters by the San Bernardino County Board of Supervisors, and a number of County-mandated regulatory services related to health.

Why Reporting of Communicable Disease is Important

Physicians and personnel in laboratories, schools, daycare centers and others are obligated by law to report certain communicable diseases to the local department of public health. Monitoring reports of communicable disease in a community allows public health to fulfill its mandate of protecting the health of its citizens. With timely morbidity reports, public health can evaluate the impact of a given disease and make appropriate recommendations to limit its further spread.

Delay or failure to report communicable diseases has contributed to serious outbreaks in the past. Failure to report can result in increased disease in the community, time lost from work or school, increased costs for diagnosis and treatment, hospitalization and possibly death.

When reporting does occur, removing persons from sensitive occupations, (e.g. food handlers), prevents the spread of diseases such as salmonellosis and hepatitis A. The early detection and appropriate treatment of patients with tuberculosis, the identification of asymptomatic carriers of typhoid and gonorrhea, the immunization of persons exposed to vaccine-preventable diseases and alerting healthcare providers about prevalent infections are just a few of the benefits derived by the entire community when reporting is timely and accurate.

Purpose of the Communicable Disease Report

The San Bernardino County Department of Public Health annual summary of communicable disease serves several functions. The report describes the extent and burden of various reported illnesses for the residents in this County. Where the impact of a certain disease in a particular group of individuals appears high, this information can be used to redirect disease control efforts. Additionally, this report helps evaluate the effectiveness of disease prevention and control programs currently operating in the County. It represents an evolving effort by several disease control programs in the County. As the communicable disease concerns of our citizens change, the data collected and summarized in this report will also change.

Additional information concerning AIDS illnesses in this County is available in summary reports generated by the San Bernardino County Department of Public Health AIDS/STD Program, and can be obtained by calling the AIDS Program at (909) 383-3060.

San Bernardino County Reported Communicable Diseases 2002

How to Interpret This Report

This format contains epidemiological data as well as 5-year historical incidence by racial/ethnic group and age group. Some of the features of the disease pages are described below.

Although many communicable diseases may be transmitted by more than one mechanism (i.e., Hepatitis B), here, they are categorized by *primary* mode of transmission.

Each selected disease is accompanied by a commentary section that describes general disease facts and local epidemiological insight.

For comparison of the local disease burden with national goals for reduction in the incidence of designated diseases by the year 2010, the Healthy People 2010 Objective is indicated on the disease pages for which an objective has been defined. Objectives not expressed as a rate cannot be directly compared with local disease burden. Not all diseases reportable in San Bernardino County have been assigned a Healthy People 2010 Objective.

Footnotes and data sources applicable to all pages of this report are referenced in Appendices E and F.

San Bernardino County Reported Communicable Diseases 2001

Diseases Transmitted by Respiratory Secretions

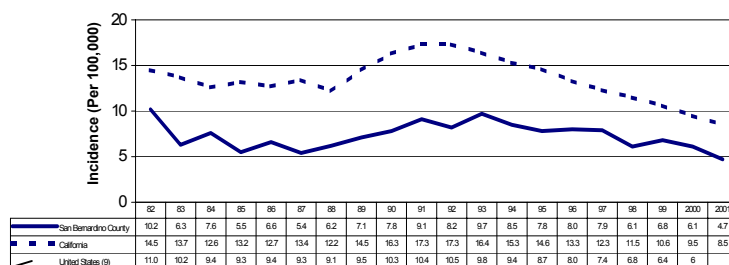
Tuberculosis

- Tuberculosis (TB) is a bacterial disease spread by infected respiratory droplets. TB primarily affects and is spread by the respiratory route, but may manifest anywhere in the body. Children and people who are immunocompromised are at greater risk of developing extra-pulmonary tuberculosis. In San Bernardino County in 2001, 27% of the TB cases had extrapulmonary disease.
- Tuberculosis incidence continues to decline overall in the US population. In San Bernardino County foreign-born persons make up the majority of TB cases (55% of cases are foreign-born). The majority of foreign-born cases come from Mexico and the Philippines.
- Asian/Pacific Islanders, and the elderly continue to have the greatest incidence of TB in San Bernardino County. Asian/Pacific Islanders have an incidence of 29 cases per 100,000 versus 4.6 among Blacks, 5.5 among Hispanics, and 1.8 in Whites. In people aged 65 years or more the TB incidence is 14 cases per 100,000.
- TB disease and Latent Tuberculosis Infection (LTBI) are frequently confused. TB disease is communicable, whereas LTBI is not, and is diagnosed based on a positive skin test and absence of clinical illness. Treatment for LTBI is recommended.

San Bernardino County					
	1997	1998	1999	2000	2001
Race/Ethnicity					
White	22	18	15	18	16
Black	12	13	17	13	7
Hispanic	60	44	45	48	31
Asian	33	26	36	25	26
Native Am	1	0	0	0	0
Other / Not Specified	0	0	0	0	3
Age Group					
<1	6	0	1	1	1
1-4	7	7	4	2	7
5-9	3	1	2	2	2
10-14	3	2	0	1	2
15-19	6	5	3	3	3
20-24	10	7	3	8	1
25-29	10	5	10	7	4
30-34	11	11	8	8	5
35-39	10	9	7	9	8
40-44	14	9	10	7	14
45-54	14	13	19	14	8
55-64	11	9	18	13	7
≥65	23	23	28	29	21
Not Specified	0	0	0	0	0
Total	128	101	113	104	83

HP 2010 Objective: 1 case per 100,000 population

Incidence Rates for Tuberculosis in San Bernardino County, California and the United States, 1982-2001



San Bernardino County Reported Communicable Diseases 2002

Data Limitations

The obligation for health care professionals to report designated diseases and conditions to their local Department of Public Health is mandated by Title 17, Sections 2500 and 2505 of the California Code of Regulations. The data presented in this report was tabulated from disease reports received from laboratories, hospitals, physicians, schools and other health providers throughout the county through the passive surveillance system established for reportable conditions. For this reason, a few major limitations must be acknowledged when interpreting these data.

First, the incidence of disease presented in this report underrepresents the true burden of disease in San Bernardino County. It is clear that not every reportable disease or condition is actually identified by or reported to the Department of Public Health. Individuals may not be ill enough to require medical care or the physician may not request testing of the patient at the time of the office visit. Diseases and conditions reportable only by physicians (see Appendix C) are significantly underreported. Illnesses that are a) fatal, b) require prophylaxis for prevention or c) are reportable by both laboratories and physicians are more likely to be reported.

Additionally, public health data may not reflect the true risk of exposure of county residents to a particular pathogen. Individuals identified as having a notifiable condition are reported by place of residence, not by place of exposure. Immigrants and other individuals who travel both domestically and abroad may acquire an unusual illness or other condition in the location of travel. These individuals are nevertheless counted in San Bernardino County if their address of residence is within the County. Conversely, residents who visit San Bernardino County may acquire an infection here and subsequently be reported by the health jurisdiction in which they permanently reside. County residents who are exposed to a communicable disease in another county where they work or socialize may unknowingly be part of a multi-county outbreak.

Section 1

Reported Communicable Diseases in 2002

Table 1: By Age Group

Table 2: By Race/Ethnicity

Table 3: Preventable by Immunization

Table 1. Reported Communicable Diseases by Age Group (in years), San Bernardino County, 2002

DISEASE NAME	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65+	Unknown	Total
AIDS (1)	0	0	0	0	0	7	18	31	32	25	15	4	1	0	133
Amebiasis	0	0	1	1	0	1	0	0	0	0	2	0	0	0	5
Anthrax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ascariasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Botulism, Infant	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Botulism, Wound	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Brucellosis	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Campylobacteriosis	6	25	16	12	10	6	2	5	5	11	14	5	10	0	127
Chlamydia	1	0	1	87	1,941	2,341	865	418	175	97	49	13	2	0	5,990
Chlamydial PID (2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cholera (3)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coccidioidomycosis	0	0	0	0	1	2	0	0	1	0	8	4	3	0	19
Cryptococcosis	0	0	0	0	0	0	0	2	1	1	0	0	0	0	4
Cryptosporidiosis	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Cysticercosis	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Dengue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Encephalitis, Viral	1	0	1	3	0	0	0	1	0	0	0	0	1	0	7
<i>Escherichia coli</i> O157:H7	0	1	2	0	2	0	0	0	0	0	2	0	1	0	8
Giardiasis	0	3	9	5	1	1	3	1	7	2	12	2	5	0	51
Gonorrhea, Total (4)	0	0	0	8	384	519	279	159	66	47	40	11	1	0	1,514
Gonococcal PID (2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haemophilus Influenzae Invasive (5)	2	2	2	0	1	0	0	0	0	0	1	0	1	0	9
Hantavirus Pulmonary Syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hemolytic Uremic Syndrome	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Hepatitis A	0	0	5	7	3	2	2	2	0	1	4	6	2	0	34
Hepatitis B, (Acute)	0	0	0	0	1	2	1	5	3	5	2	3	2	0	24
Hepatitis B, (Carrier)	1	0	1	3	19	31	52	60	63	68	65	39	22	0	424
Hepatitis C, (Acute)	0	0	0	0	0	0	1	3	1	0	1	0	0	0	6
Hepatitis C, (Chronic) (6)	3	0	0	0	17	52	91	195	365	534	979	289	138	0	2,663
Hepatitis D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HIV (18)	0	1	0	1	10	65	99	125	94	65	36	7	8	0	511
Influenza (Types A and B)	0	3	0	1	0	0	0	0	0	0	0	1	0	0	5
Kawasaki Syndrome	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
Legionellosis	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Leprosy (Hansen's Disease)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Leptospirosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Listeriosis	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3
Lyme Disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaria	0	1	1	1	3	0	0	1	0	1	4	0	0	0	12
Measles (Rubeola)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningitis, Bacterial (7)	4	2	0	1	0	1	0	0	0	0	1	1	0	2	12

Table 1. Reported Communicable Diseases by Age Group (in years), San Bernardino County, 2002

DISEASE NAME	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55-64	65+	Unknown	Total
Meningitis, Fungal	0	0	0	0	0	0	0	4	1	0	5	0	0	0	10
Meningitis, Viral	15	7	26	15	8	9	14	10	4	8	8	4	0	0	128
Meningococcal Disease (8)	2	1	0	1	1	0	1	0	0	0	0	1	2	0	9
Mumps	0	1	1	1	0	0	0	0	0	0	1	0	0	0	4
Non-Gonococcal Urethritis	1	0	0	0	6	24	23	22	14	13	9	2	0	0	114
Pelvic Inflammatory Disease (2)	0	0	0	0	3	4	2	5	2	2	0	1	0	0	19
Pertussis (Whooping Cough)	14	3	0	1	0	1	0	0	0	0	0	0	0	0	19
Plague	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psittacosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q-Fever	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rabies, Human	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rubella (German Measles)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rubella Syndrome, Congenital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	15	26	16	10	6	9	2	9	3	10	15	13	4	0	138
Shigellosis, Total	1	21	30	6	3	3	1	1	3	3	4	0	0	0	76
Group A (S. dysenteriae)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Group B (S. flexneri)	0	5	2	0	2	0	0	0	0	2	2	0	0	0	13
Group C (S. boydii)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Group D (S. sonnei)	0	15	27	5	1	3	1	1	3	1	2	0	0	0	59
Group Unknown	1	1	1	1	0	0	0	0	0	0	0	0	0	0	4
Strongyloidiasis	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Syphilis, Total	0	0	0	0	6	8	9	18	22	15	21	9	7	0	115
Primary	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Secondary	0	0	0	0	1	0	0	1	2	0	1	0	0	0	5
Early Latent (<1 yr)	0	0	0	0	1	2	0	0	0	1	0	0	0	0	4
Late Latent/Late (>1 yr)	0	0	0	0	3	6	9	17	19	14	20	9	7	0	104
Congenital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis	0	1	0	1	1	6	7	6	8	1	7	11	15	0	64
Tularemia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Typhoid Fever, (Acute)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Typhoid Fever, (Carrier)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Vibrio Infections (3)	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3
Yellow Fever	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yersiniosis	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2

See Appendices F and G for Notes and Sources for Table 1

Table 2. Reported Communicable Diseases by Race/Ethnicity, San Bernardino County, 2002.

	White	Black	Hispanic	Native American	Asian	Other	Unknown	Total
AIDS (1)	50	34	46	0	2	1	0	133
Amebiasis	1	0	0	0	2	0	2	5
Anthrax	0	0	0	0	0	0	0	0
Ascariasis	0	0	0	0	0	0	0	0
Botulism, Infant	2	0	1	0	0	0	0	3
Botulism, Wound	1	0	0	0	0	0	1	2
Brucellosis	0	0	1	0	0	0	0	1
Campylobacteriosis	28	2	51	0	1	0	45	127
Chlamydia	796	851	1,549	8	73	4	2,709	5,990
Chlamydial PID (2)	0	0	0	0	0	0	0	0
Cholera (3)	0	0	0	0	0	0	0	0
Coccidioidomycosis	4	5	3	0	0	0	7	19
Cryptococcosis	1	0	0	0	0	0	3	4
Cryptosporidiosis	0	0	1	0	0	0	0	1
Cysticercosis	0	0	0	0	0	0	1	1
Dengue	0	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0	0
Encephalitis, Viral	2	1	3	0	0	0	1	7
<i>Escherichia coli</i> O157:H7	6	0	1	0	0	0	1	8
Giardiasis	13	5	15	0	1	1	16	51
Gonorrhea, Total (4)	191	382	268	0	10	3	660	1,514
Gonococcal PID (2)	0	0	0	0	0	0	0	0
Haemophilus Influenzae Invasive (5)	3	1	4	0	0	0	1	9
Hantavirus Pulmonary Syndrome	0	0	0	0	0	0	0	0
Hemolytic Uremic Syndrome	1	0	0	0	0	0	0	1
Hepatitis A	18	0	10	0	0	0	6	34
Hepatitis B, (Acute)	9	8	3	0	0	0	4	24
Hepatitis B, (Carrier)	63	33	24	140	0	2	162	424
Hepatitis C, (Acute)	2	0	3	0	0	0	1	6
Hepatitis C, (Chronic) (6)	181	60	112	4	5	1	2,300	2,663
Hepatitis D	0	0	0	0	0	0	0	0
HIV (18)	218	158	127	5	2	0	1	511
Influenza (Types A and B)	0	0	2	0	0	0	3	5
Kawasaki Syndrome	3	1	1	0	0	0	0	5
Legionellosis	0	1	1	0	0	0	0	2
Leprosy (Hansen's Disease)	0	0	1	0	0	0	0	1
Leptospirosis	0	0	0	0	0	0	0	0
Listeriosis	1	0	0	0	2	0	0	3
Lyme Disease	0	0	0	0	0	0	0	0
Malaria	1	8	0	0	3	0	0	12
Measles (Rubeola)	0	0	0	0	0	0	0	0
Meningitis, Bacterial (7)	3	2	2	0	0	0	5	12

Table 2. Reported Communicable Diseases by Race/Ethnicity, San Bernardino County, 2002.

	White	Black	Hispanic	Native American	Asian	Other	Unknown	Total
Meningitis, Fungal	2	1	0	0	0	0	7	10
Meningitis, Viral	44	20	49	0	2	0	13	128
Meningococcal Disease (8)	4	0	4	0	1	0	0	9
Mumps	1	0	2	0	0	0	1	4
Non-Gonococcal Urethritis	29	44	24	0	0	0	17	114
Pelvic Inflammatory Disease (2)	4	3	8	0	1	0	3	19
Pertussis (Whooping Cough)	5	3	8	0	0	0	3	19
Plague	0	0	0	0	0	0	0	0
Psittacosis	0	0	0	0	0	0	0	0
Q-Fever	0	0	0	0	0	0	0	0
Rabies, Human	0	0	0	0	0	0	0	0
Rubella (German Measles)	0	0	0	0	0	0	0	0
Rubella Syndrome, Congenital	0	0	0	0	0	0	0	0
Salmonellosis	46	8	52	1	5	0	26	138
Shigellosis, Total	8	4	47	0	2	0	15	76
Group A (<i>S. dysenteriae</i>)	0	0	0	0	0	0	0	0
Group B (<i>S. flexneri</i>)	4	1	5	0	1	0	2	13
Group C (<i>S. boydii</i>)	0	0	0	0	0	0	0	0
Group D (<i>S. sonnei</i>)	3	3	40	0	1	0	12	59
Group Unknown	1	0	2	0	0	0	1	4
Strongyloidiasis	0	0	0	0	1	0	0	1
Syphilis, Total	14	10	68	6	0	1	16	115
Primary	0	0	2	0	0	0	0	2
Secondary	2	0	2	1	0	0	0	5
Early Latent (<1 yr)	3	0	1	0	0	0	0	4
Late Latent/Late (>1 yr)	9	10	63	5	0	1	16	104
Congenital	0	0	0	0	0	0	0	0
Tetanus	0	0	0	0	0	0	0	0
Tuberculosis	7	7	24	0	24	1	1	64
Tularemia	0	0	0	0	0	0	0	0
Typhoid Fever, (Acute)	0	0	1	0	0	0	0	1
Typhoid Fever, (Carrier)	0	0	0	0	0	1	0	1
Vibrio Infections (3)	0	0	1	0	0	0	2	3
Yellow Fever	0	0	0	0	0	0	0	0
Yersiniosis	0	0	0	0	0	0	2	2

See Appendices F and G for Notes and Sources for Table 2

**Table 3. Reported Cases of Diseases Preventable by Immunization
San Bernardino County, 2000-2002**

Disease	Reported Cases					
	All Ages			Children <5 Years		
	2000	2001	2002	2000	2001	2002
Congenital Rubella Syndrome	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0
Haemophilus influenzae*	3	2	9	1	0	4
Hepatitis A	128	63	34	10	3	0
Hepatitis B (acute)	21	31	24	0	0	0
Hepatitis B Carrier	531	466	424	3	3	1
Measles (Rubeola)	0	1	0	0	0	0
Meningococcal Infection*	7	8	9	3	3	3
Mumps	6	5	4	0	1	1
Pertussis	5	14	19	5	14	17
Pneumococcal Infection *	7	22	13	1	2	5
Poliomyelitis, paralytic	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Tetanus	0	0	0	0	0	0

* Includes both Meningitis and Sepsis

Section 2

Incidence Rates, 10 to 20 year

Graphs of incidence and rate per 100,000 population of selected reportable diseases.

San Bernardino County Reported Communicable Diseases 2002

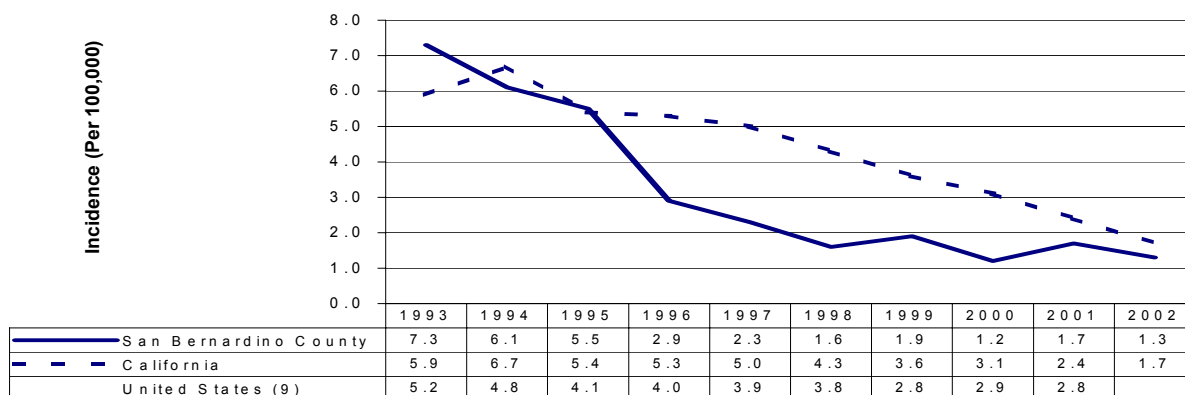
Diseases Transmitted by Blood and Blood Products

Hepatitis B, Acute

- The Centers for Disease Control and Prevention (CDC) estimates the number of new infections has declined from 450,000 in the 1980s to 80,000 in 1999 due to increasing vaccination and concerns about HIV.
- The hepatitis B virus is transmitted by sexual contact, through contaminated blood products, tattooing, piercing, illicit drug use, hemodialysis and perinatally either during pregnancy or postpartum.
- The CDC estimates between 6 and 10% of patients will not resolve the infection. Persistent (or chronic) infection is associated with age at infection, genetics, certain HLA (tissue) types, male gender, size of the infective dose, severity of initial disease, and degree of immunosuppression.
- There were 424 Hepatitis B carriers in 2002.
- During 1998-2002, 63.8% of County cases were male and 52.3% of cases with an identified racial or ethnic group were White.
- Of 24 acute 2002 cases, 12 (75%) had sexual contact, three (18.7%) were born outside the country, two (12.5%) used intravenous or other drugs, six (37.5%) had been in jail or prison, 3 (18.7%) had contact with a hepatitis case or a jaundiced person. Cases may have indicated multiple risk factors on interview.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	7	21	6	13	9
Black	3	4	5	4	8
Hispanic	8	2	5	4	3
Asian	0	2	1	1	0
Native Am	0	0	0	1	0
Other / Not Specified	9	3	4	8	4
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	1	0	1	0
15-19	0	1	0	0	1
20-24	4	4	1	2	2
25-29	6	2	3	4	1
30-34	7	4	3	3	5
35-39	6	4	2	8	3
40-44	1	7	1	1	5
45-54	1	6	8	5	2
55-64	2	2	1	4	3
≥65	0	1	2	3	2
Not Specified	0	0	0	0	0
Total	27	32	21	31	24

Incidence Rates for Acute Hepatitis B in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Blood and Blood Products

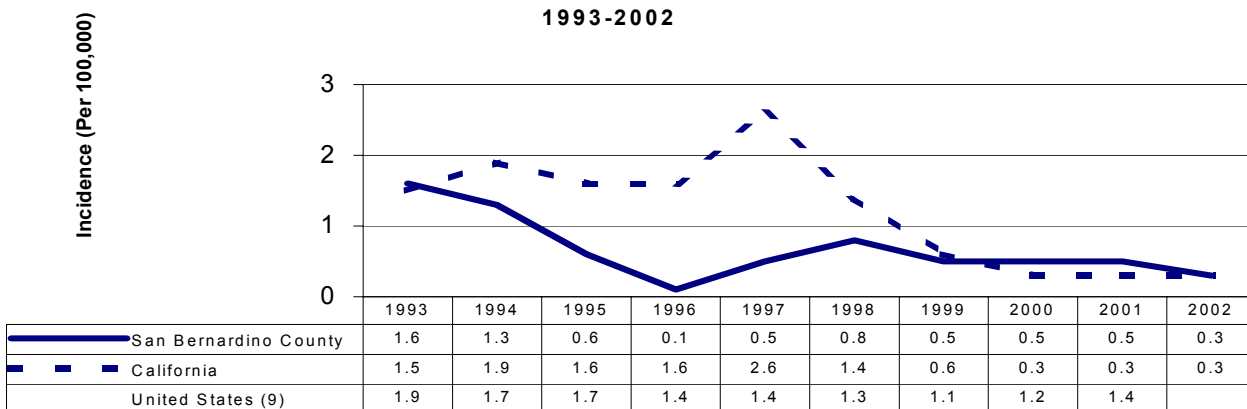
Hepatitis C, Acute

- The most common sources of infection nationally are intravenous drug use (60%), sexual (15%), and transfusion before 1992 (10%). Hemodialysis, working in the healthcare field and perinatal transmission accounted for less than 5% of the cases. Ten percent of cases had no source of infection identified.
- While 15-25% of acute cases will resolve their infection, 60-70% will develop chronic infection. Of these, 10-20% will develop cirrhosis and 1-5% hepatocellular cancer.
- During 1998-2002, there were 45 acute cases in San Bernardino County with identifiable race or ethnicity, of which 16 (41.0%) were Hispanic and 18 (46.1%) were White.
- According to the Centers for Disease Control and Prevention (CDC), the number of new infections declined more than 80% from 1989 to approximately 41,000 per year in 1998. An estimated 2.7 million individuals in the US are chronically infected.
- Of the 6 acute county 2002 cases, 2 had used intravenous or other drugs, 1 had tattoos, 3 had been in jail, and 1 had sexual contact with an individual of unknown status. Cases may have reported multiple risk factors on interview.
- In 2002, 2,663 chronic cases were reported.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	5	2	6	4	2
Black	1	2	0	0	0
Hispanic	5	2	3	3	3
Asian	0	1	0	0	0
Native Am	0	0	0	0	0
Other / Not Specified	2	1	0	2	1
Age Group					
<1	0	0	1	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	0	0	0	0	0
20-24	1	0	2	0	0
25-29	1	1	1	0	1
30-34	3	3	0	2	3
35-39	4	1	0	2	1
40-44	1	3	5	3	0
45-54	0	0	0	1	1
55-64	2	0	0	0	0
≥65	1	0	0	1	0
Not Specified	0	0	0	0	0
Total	13	8	9	9	6

HP 2010 Objective: 1 case per 100,000 population

Incidence Rates for Acute Hepatitis C/Non-A,Non-B in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

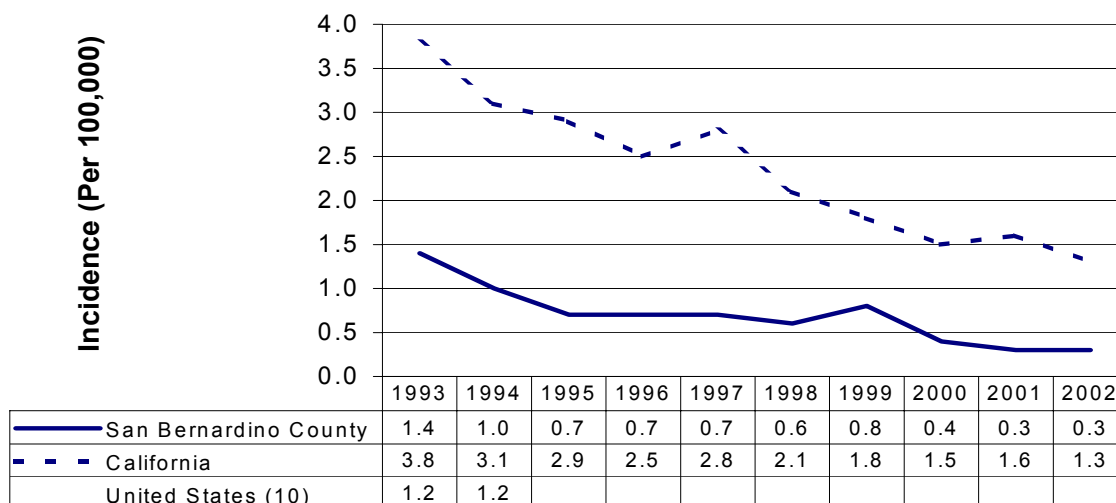
Diseases Transmitted by Fecal-Oral Route

Amebiasis

- Amebiasis is caused by a protozoan parasite called, *Entamoeba histolytica*. The parasite can act as a commensal or invade tissues and give rise to intestinal or extraintestinal disease.
- E. histolytica* tends to be a problem of developing nations where unhygienic conditions leads to the fecal-oral route of disease transmission.
- The parasite exists in two forms: a hardy, infective cyst and a more fragile trophozoite.
- The host is infected by swallowing a cyst in fecally contaminated food or water, which then becomes a trophozoite in the large intestine. It is the trophozoite stage that may become invasive.
- Disease is manifested most often as ulcerative and inflammatory lesions of the colon. Occasionally, amebas gain access to extraintestinal sites, usually the liver, which results in an amebic abscess.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	2	7	2	2	1
Black	1	1	0	0	0
Hispanic	5	3	4	2	0
Asian	0	0	1	1	2
Native Am	0	0	0	0	0
Other /					
Not Specified	1	3	0	1	2
Age Group					
<1	1	0	0	0	0
1-4	2	3	2	2	0
5-9	0	3	1	0	1
10-14	2	0	0	1	1
15-19	0	0	0	1	0
20-24	1	0	1	0	1
25-29	0	0	0	0	0
30-34	1	1	0	0	0
35-39	0	4	1	0	0
40-44	1	0	0	0	0
45-54	0	0	1	1	2
55-64	1	2	0	0	0
≥65	0	1	1	1	0
Not Specified	0	0	0	0	0
Total	9	14	7	6	5

Incidence Rates for Amebiasis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Fecal-Oral Route

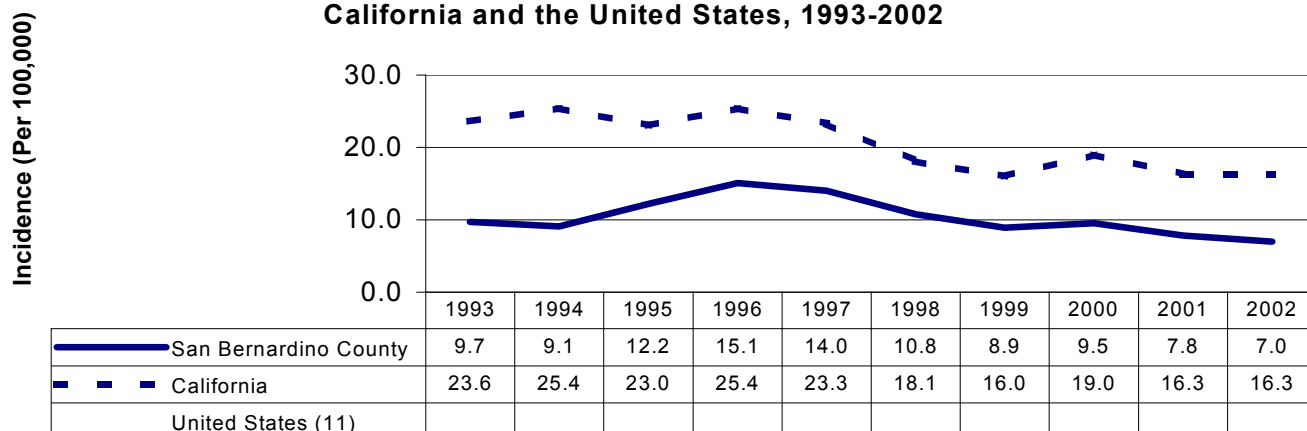
Campylobacteriosis

- Infection with *Campylobacter jejuni* may cause fever, headache, and myalgia, followed by diarrhea and abdominal pain.
- Outbreaks have occurred associated with unpasteurized milk and cheeses, consumption of untreated surface water, defects in municipal water systems, undercooked meats and poultry, raw clams, and goat milk.
- An estimated 50-70% of sporadic infections have been associated with undercooked poultry. Household pets such as dogs and cats, both symptomatic and not, have been implicated as sources of sporadic infection also. Infected individuals may also spread infection via the fecal-oral route by contaminating food.
- Infections occur year-round, however there is a peak in summer and early fall probably due to seasonal changes in foods and food preparation.
- The age groups <1 to 9 years of age accounted for 37% (286/759) of the County cases reported from 1998 to 2002. This peak may reflect a smaller infective dose needed or an increased tendency to seek medical care for children.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	31	49	46	44	28
Black	4	5	5	7	2
Hispanic	77	77	58	51	51
Asian	3	6	2	3	1
Native Am	0	0	0	1	0
Other / Not Specified	62	18	51	32	45
Age Group					
<1	11	4	6	8	6
1-4	34	40	38	29	25
5-9	14	22	16	17	16
10-14	10	8	11	14	12
15-19	9	6	7	6	10
20-24	6	8	10	10	6
25-29	9	10	12	2	2
30-34	11	7	10	3	5
35-39	17	10	7	4	5
40-44	13	10	13	9	11
45-54	20	13	11	19	14
55-64	10	12	8	10	5
≥65	13	5	13	7	10
Not Specified	0	0	0	0	0
Total	177	155	162	138	127

HP 2010 Objective: 12.3 cases per 100,000 population

Incidence Rates for Campylobacteriosis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Fecal-Oral Route

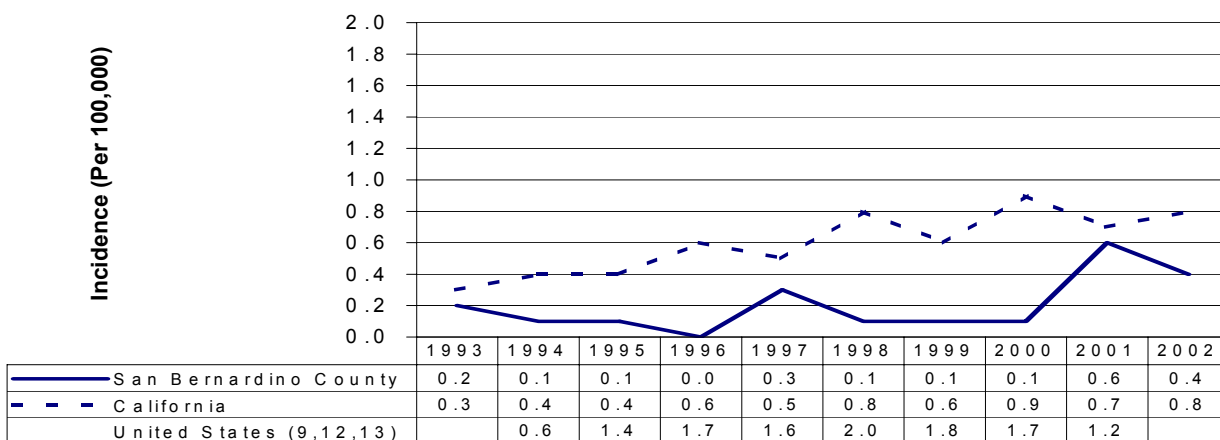
E. coli O157:H7 Infection

- Escherichia coli* O157:H7 is transmitted by consumption of undercooked contaminated ground beef, sprouts, lettuce, salami, and unpasteurized milk and juice. Infection can occur also from swimming in or drinking sewage-contaminated water.
- Infection with *E. coli* O157:H7 can cause bloody or nonbloody diarrhea, abdominal cramps, and usually little or no fever which resolves in 5-10 days. Hemolytic Uremic Syndrome (HUS) is a severe complication of infection involving loss of red blood cells and kidney failure.
- E. coli* O157:H7, an enterohemorrhagic type of *E. coli*, is responsible for 0.8-3% of all diarrheal illnesses in the US and Canada, and 15-36% of all cases of bloody diarrhea. *E. coli* O157:H7 accounts for 75-90% of HUS cases in N. America.
- Of the 8 county cases, 3 had consumed ground beef, 1 roast beef and 5 had eaten lettuce prior to their onset. Two had also consumed apple juice. Cases reported multiple exposures before their onset.
- One of the 8 *E. coli* O157:H7 cases had both *E. coli* and HUS.
- No 2002 county *E. coli* or HUS cases died.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	1	1	1	4	6
Black	0	0	0	1	0
Hispanic	0	0	1	3	1
Asian	0	1	0	1	0
Native Am	0	0	0	0	0
Other /					0
Not Specified	0	0	0	1	1
Age Group					
<1	0	0	0	0	0
1-4	0	1	1	6	1
5-9	0	1	0	1	2
10-14	0	0	0	0	0
15-19	1	0	0	0	2
20-24	0	0	0	0	0
25-29	0	0	0	0	0
30-34	0	0	0	0	0
35-39	0	0	0	0	0
40-44	0	0	0	2	0
45-54	0	0	0	0	2
55-64	0	0	1	1	0
≥65	0	0	0	0	1
Not Specified	0	0	0	0	0
Total	1	2	2	10	8

HP 2010 Objective: 1 case per 100,000 population

Incidence Rates for *Escherichia coli* O157:H7 Infections in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

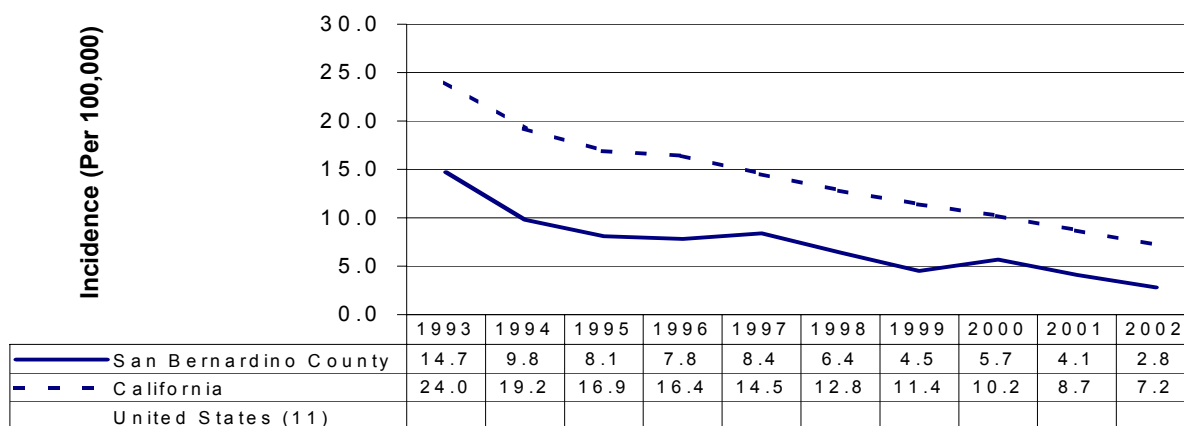
Diseases Transmitted by Fecal-Oral Route

Giardiasis

- *Giardia lamblia* is a flagellated enteric protozoan that causes acute diarrhea, abdominal cramps, bloating, and weight loss. Asymptomatic cyst passage may also occur for as long as six months. Infection occurs after ingestion of as few as 10-25 cysts.
- During 1979-1991 *Giardia* was the most commonly identified intestinal parasite, found in 4-7% of all stool specimens.
- *Giardia* is transmitted by consumption of cysts in surface water contaminated by humans or animals, person to person, especially in daycare centers, among men who have sex with men, and in custodial institutions and by consumption of contaminated food.
- Prevalence studies in daycare centers have found 20-50% of children positive and among men who have sex with men 20% positivity.
- *Giardia* was formerly thought to be a harmless commensal but now is known to cause malabsorption syndrome and volume depletion in children. The severity of disease is related to the number of cysts ingested, the strain type, and the host's immune response. Children under 5 years and pregnant women may also have more severe illness.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	26	37	40	26	13
Black	3	4	2	2	5
Hispanic	42	26	20	34	15
Asian	5	2	1	2	1
Native Am	0	0	0	0	0
Other /					1
Not Specified	30	6	35	8	16
Age Group					
<1	2	2	3	0	0
1-4	33	16	29	21	3
5-9	18	8	15	13	9
10-14	7	4	4	6	5
15-19	2	3	1	4	1
20-24	1	5	4	1	1
25-29	11	4	8	2	3
30-34	7	8	3	3	1
35-39	8	3	10	7	7
40-44	5	5	5	6	2
45-54	3	7	8	2	12
55-64	6	3	5	4	2
≥65	3	7	3	3	5
Not Specified	0	0	0	0	0
Total	106	75	98	72	51

Incidence Rates for Giardiasis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Fecal-Oral Route

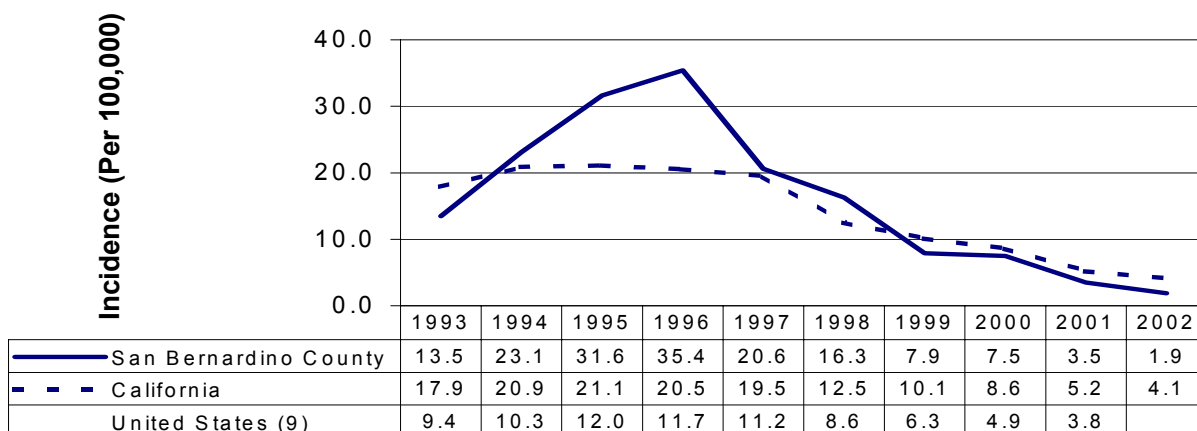
Hepatitis A

- The US rate of 3.8 cases per 100,000 is the lowest ever reported and is believed to be due to routine immunization now done by 11 states or a natural variation in numbers of cases.
- In 2001-2002 several states reported increases in numbers of cases related to outbreaks among high risk adults, including MSM.
- The most common risk factors reported by county cases are international travel (38%), and exposure to a known or suspect case (23%). Of those that traveled, 92% went to Mexico.
- The most common symptoms reported include fever, chills, headache, malaise, fatigue, loss of appetite, hepatomegaly, and jaundice. Among children under 6 years, 70% are asymptomatic.
- While humans are the only reservoir, there was an outbreak in 1961 among handlers of a group of chimpanzees.
- Before the vaccine, Immune Serum Globulin (ISG) was given within 14 days of exposure to prevent illness. ISG was first given during a large summer camp exposure in 1944.
- Most individuals recover by the 3rd week after onset. However, the average adult with HAV misses 27 days of work and between 11-22% of all cases are hospitalized.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	81	49	53	14	18
Black	14	3	5	2	0
Hispanic	132	67	61	40	10
Asian	1	0	1	2	0
Native Am	0	1	0	0	0
Other /					0
Not Specified	40	12	8	5	6
Age Group					
<1	0	0	0	0	0
1-4	23	11	10	3	0
5-9	47	25	28	10	5
10-14	32	20	21	14	7
15-19	25	6	14	9	3
20-24	23	9	7	5	2
25-29	24	15	16	3	2
30-34	27	5	7	4	2
35-39	24	9	8	3	0
40-44	17	7	3	3	1
45-54	21	10	9	4	4
55-64	4	7	2	3	6
≥65	1	8	3	2	2
Not Specified	0	0	0	0	0
Total	268	132	128	63	34

HP 2010 Objective: 4.5 cases per 100,000 population

Incidence Rates for Hepatitis A in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Fecal-Oral Route

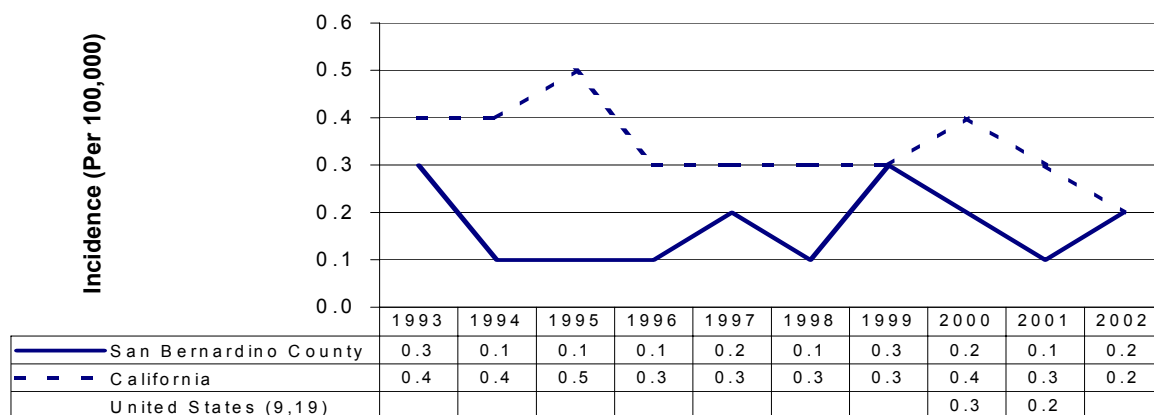
Listeriosis

- Pregnant women, immunocompromised and older individuals are at risk for severe illness, including sepsis and meningoencephalitis.
- Pregnant women account for 30% of all cases possibly due to a decline in cell-mediated immunity at 26-30 weeks gestation. Of perinatal infections, 22% result in stillbirth, neonatal death or premature labor.
- Outbreaks have been associated with coleslaw, milk, soft cheeses, pate, ready-to-eat pork products, and cold-smoked trout. Sporadic cases have occurred due to consumption of contaminated cheese, raw vegetables, raw milk, fish, turkey franks, and alfalfa tablets.
- An outbreak of foodborne Listeria caused gastroenteritis in a group of people who consumed contaminated chocolate milk at a Holstein cow show. Outbreaks may be missed as routine bacterial stool tests may not detect Listeria.
- In two CDC studies, 11% of refrigerated foods were found to be contaminated and 64% of patients had at least one contaminated food in their refrigerator.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	1	5	2	1	1
Black	0	0	0	0	0
Hispanic	1	0	1	0	0
Asian	0	0	0	0	2
Native Am	0	0	0	0	0
Other /					
Not Specified	0	0	0	1	0
Age Group					
<1	0	0	0	0	1
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	0	0	0	0	0
20-24	0	0	0	0	0
25-29	0	0	0	0	1
30-34	0	0	0	1	0
35-39	0	0	1	0	0
40-44	0	1	0	0	0
45-54	0	1	1	1	0
55-64	0	0	0	0	0
≥65	2	3	1	0	1
Not Specified	0	0	0	0	0
Total	2	5	3	2	3

HP 2010 Objective: 0.25 cases per 100,000 population

Incidence Rates for Listeriosis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Fecal-Oral Route

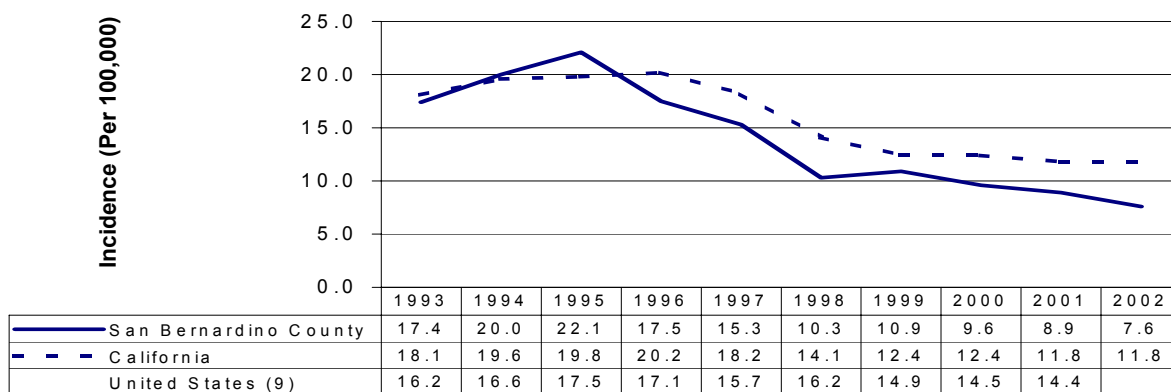
Salmonellosis

- Salmonellosis is associated with consumption of meat, poultry, eggs, dairy products and more recently contaminated vegetables and fruits such as cantaloupes, orange juice, tomatoes, and sprouts. An estimated 3-5% of all cases are the result of contact with pets, including birds, rodents, dogs and cats, reptiles and amphibians.
- The infective dose is estimated to be less than 1000 organisms based on volunteer studies and information from outbreaks.
- The most common reported symptoms are nausea, vomiting, diarrhea, fever, abdominal cramps and headache lasting 3-7 days.
- Adults may shed the bacteria a mean of 4-5 weeks while 50% of neonates are still passing the bacteria after 6 months.
- Of 2,449 serotypes, five: *S. enteritidis*, *S. typhimurium*, *S. newport*, *S. heidelberg* and *S. typhimurium variant copenhagen* accounted for 45.1% of County cases where the serotype was known.
- There are an estimated 0.8-3.7 million cases annually in the US. The incidence of cases increases between May and October possibly due to seasonal changes in food choices and cooking methods.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	52	77	80	56	46
Black	5	10	10	12	8
Hispanic	61	71	55	64	52
Asian	6	10	7	1	5
Native Am	0	0	0	0	1
Other / Not Specified	45	15	12	24	26
Age Group					
<1	17	22	15	20	15
1-4	29	29	36	27	26
5-9	18	21	19	19	16
10-14	9	16	12	8	10
15-19	6	6	8	5	6
20-24	8	10	13	7	9
25-29	12	10	3	6	2
30-34	14	11	6	6	9
35-39	13	15	4	12	3
40-44	7	10	6	11	10
45-54	12	11	11	16	15
55-64	12	12	13	5	13
≥65	12	10	18	15	4
Not Specified	0	0	0	0	0
Total	169	183	164	157	138

HP 2010 Objective: 6.8 cases per 100,000

Incidence Rates for Salmonellosis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

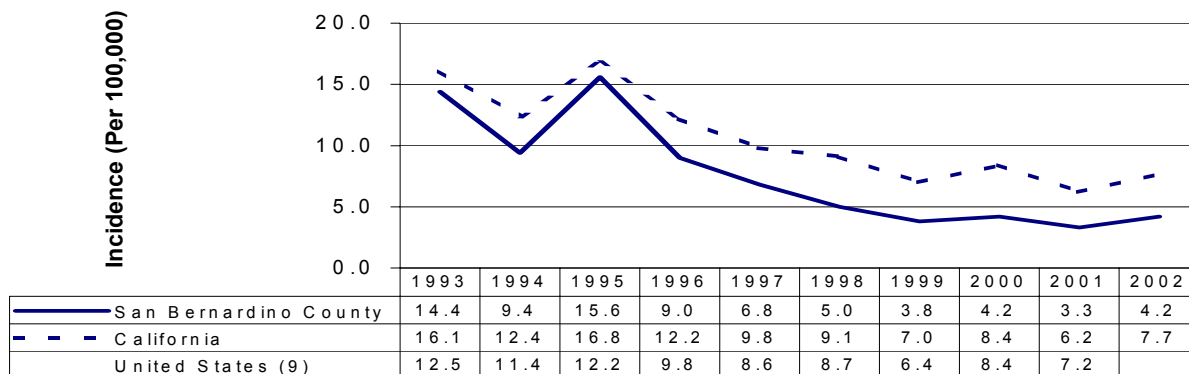
Diseases Transmitted by Fecal-Oral Route

Shigellosis

- Shigellosis was first described by Hippocrates. Several military campaigns including the American Civil War describe heavier losses due to dysentery than to war-related injuries.
- Shigellosis is characterized by fever, abdominal cramps, and watery stools lasting an average of 7 days. In 40% of patients the stools become bloody.
- The bacteria is spread via the fecal-oral route, including consumption of contaminated food or water and oral-anal sex.
- There are four species of *Shigella* of which *S. sonnei* is responsible for 60-80% of US cases. *S. dysenteriae* 1 produces a Shiga toxin which can cause Hemolytic Uremic Syndrome (HUS).
- In the US and among county cases, the highest rates of illness are reported in the 1-4 year age group.
- In 2001 there was an outbreak of 69 cases of *S. sonnei* in Iowa involving a wading pool used by diaper- and toddler-aged children. The pool was not appropriately chlorinated.
- San Francisco reported an outbreak in 2000 of *S. sonnei* among men who have sex with men resulting in an estimated 200 cases.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	8	13	21	21	8
Black	2	2	5	1	4
Hispanic	61	43	28	28	47
Asian	0	1	1	1	2
Native Am	0	0	0	0	0
Other / Not Specified	12	4	16	7	15
Age Group					
<1	0	0	0	0	1
1-4	24	13	15	17	21
5-9	2	18	13	14	30
10-14	6	3	6	4	6
15-19	4	4	3	2	3
20-24	5	4	7	4	3
25-29	3	8	10	3	1
30-34	4	2	4	1	1
35-39	7	3	2	1	3
40-44	3	3	6	1	3
45-54	3	2	1	3	4
55-64	0	2	3	3	0
≥65	2	1	1	5	0
Not Specified	0	0	0	0	0
Total	83	63	71	58	76

Incidence Rates for Shigellosis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Sexual Contact

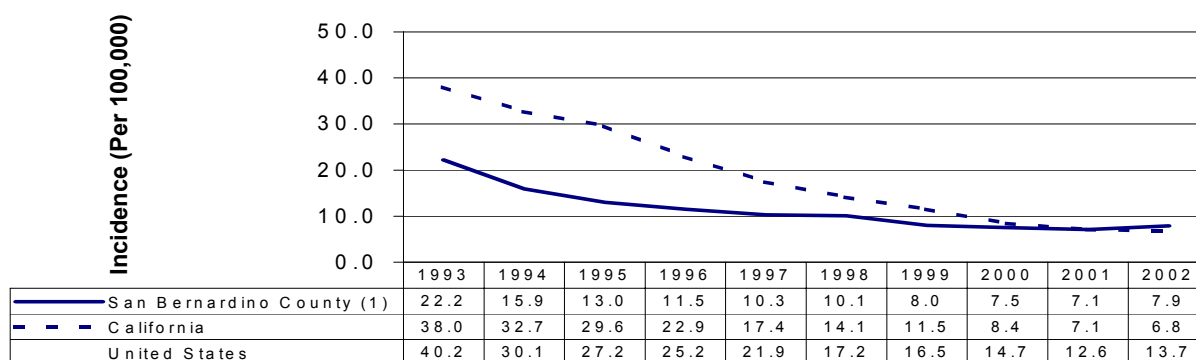
AIDS

- AIDS became a reportable condition in California in 1983. Ninety-seven percent of the 687 California cases diagnosed in 1983, and 57% of the 2,991 cases reported as of Dec. 31, 2002 have died (through December 2002). The cumulative incidence in 2002 was 164.66 cases per 100,000.
- Effective July 1, 2002 HIV was mandated reportable by the State of California using a non-name code to protect confidentiality.
- San Bernardino County is the 4th largest local health jurisdiction in the state by population, but ranks 10th among local health jurisdictions in AIDS cases reported through December 2002.
- From 1983 - 2002, 84% of San Bernardino County cases were male. Among males, the most frequently identified modes of transmission were having sex with another man (58%) and injection drug use (17%). The most frequently identified modes in females were heterosexual contact (44%) and injection drug use (38%).
- The declining incidence of AIDS can be attributed to increased prevention efforts, the development of better treatments for the management of HIV infection and the passage of the epidemic peak in the US.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	58	50	49	43	55
Black	45	25	41	35	35
Hispanic	51	51	37	43	50
Asian	4	1	1	1	2
Native Am	1	0	0	3	0
Other /					1
Not Specified	7	7	0	0	1
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	1	0	1	0	0
10-14	0	0	0	0	0
15-19	0	0	4	1	0
20-24	6	5	1	8	2
25-29	12	14	15	12	20
30-34	28	30	12	23	17
35-39	40	26	35	29	30
40-44	28	27	26	20	45
45-54	35	23	27	22	22
55-64	13	5	6	4	7
≥65	3	4	1	6	1
Not Specified	0	0	0	0	0
Total	166	134	128	125	144

HP 2010 Objective = 1.0 cases per 100,000 population

Incidence Rates for AIDS in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

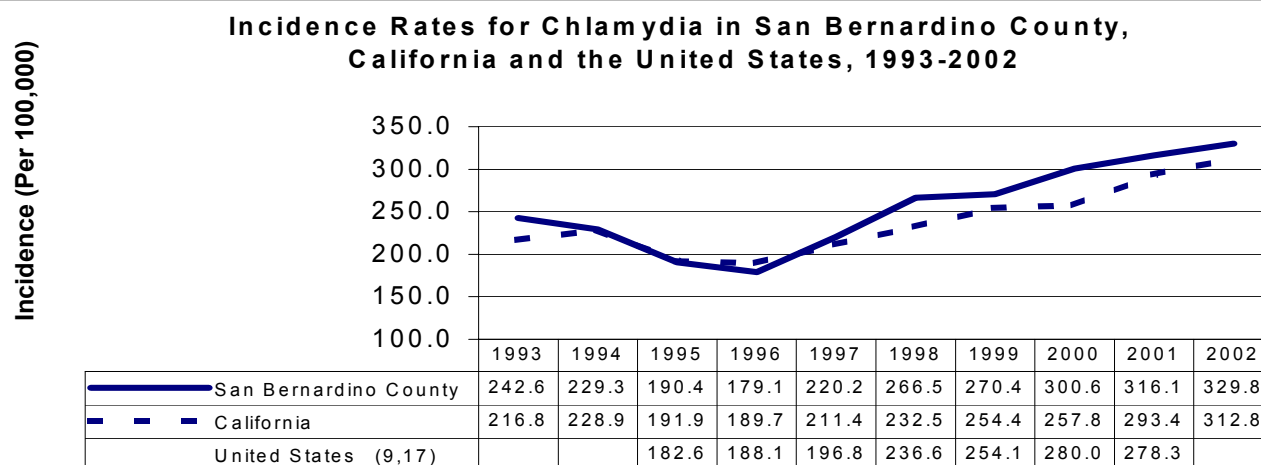
Diseases Transmitted by Sexual Contact

Chlamydia

- Centers for Disease Control and Prevention (CDC) estimate there are 4 million new infections per year in the US.
- Surveys of sexually active females have shown the proportion infected is 8-40% with a median of 15%.
- An estimated 22-44% of infants born to infected women will develop neonatal conjunctivitis 5-12 days after birth. Another 11-20% of infants develop pneumonia before 8 weeks of age. Prenatal screening and treatment prevents infection in 90% of infants.
- Prevention of chlamydial infection involves delaying age of first intercourse, decreasing the number of partners and using condoms consistently and correctly.
- The year 2001 was the highest reported rate of infection in the US. The increasing rates could be due to increased screening or increased use of newer more sensitive diagnostic tests.
- The proportion of females in San Bernardino County aged 15 to 24 testing positive is 2.5%. Of these cases, 25.5% are Hispanic, 14.4% White, 14.4% Black, 1.0% Asian, and 44.7% were reported without race/ethnicity or were reported as "other".
- Up to 70% of diagnosed women and 1-25% of men are asymptomatic.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	507	631	903	759	796
Black	486	601	838	836	851
Hispanic	1913	1026	1271	1554	1550
Asian	33	66	65	60	73
Native Am	5	10	11	13	8
Other / Not Specified	1442	2194	2049	2379	2713
Age Group					
<1	13	6	5	1	1
1-4	1	3	1	0	0
5-9	1	2	5	0	1
10-14	75	58	90	71	87
15-19	1652	1576	1788	1921	1942
20-24	1479	1654	1825	2088	2341
25-29	627	673	704	804	865
30-34	277	280	362	364	418
35-39	153	148	181	184	175
40-44	48	82	94	90	97
45-54	40	33	64	63	49
55-64	10	8	9	8	13
≥65	10	4	9	7	2
Not Specified	0	1	0	0	0
Total	4386	4528	5137	5601	5991

HP 2010 Objective = 3% of females and males aged 15-24 years attending family planning and STD clinics



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Sexual Contact

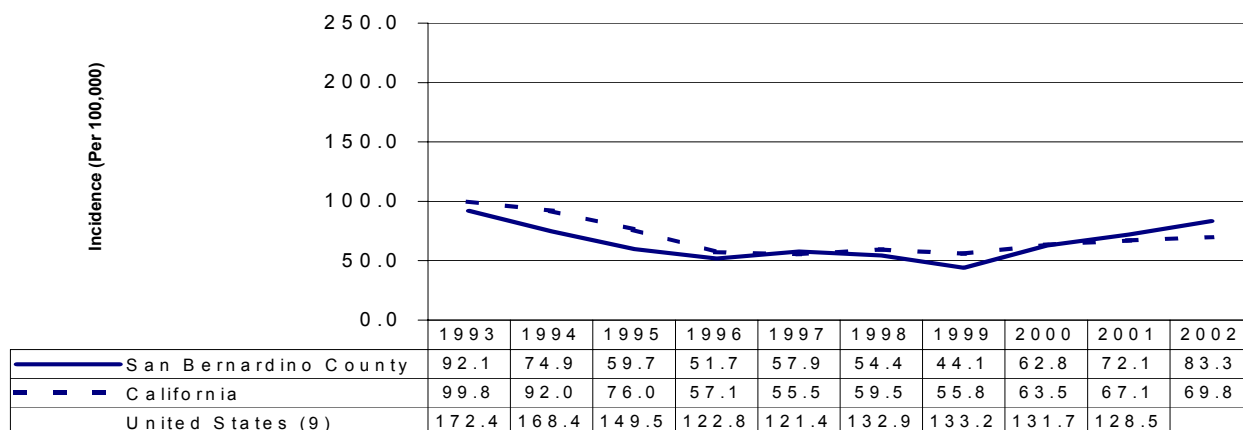
Gonorrhea

- Gonorrhea is a common bacteria transmitted sexually or perinatally. The organism *Neisseria gonorrhoeae* was first identified by Neisser in 1879. References to gonococcal infection can be found in ancient Chinese writings, and the Book of Leviticus in the Old Testament.
- The Centers for Disease Control and Prevention (CDC) reports the rates for all cases are stable from 1998 to 2001, however, increases are seen in men who have sex with men.
- As a result of increasing fluoroquinolone resistance observed in California and Hawaii, these antibiotics are no longer advised for treatment of gonococcal infections acquired in these states.
- Gonorrhea in pregnant women can transmit to the fetus in utero, during delivery or during the postpartum period. Infected pregnant women are at increased risk for spontaneous abortion, premature labor and perinatal infant mortality. Gonococcal conjunctivitis was once the most common cause of blindness in the US.
- The risk of transmission from female to male per episode of vaginal sex is estimated to be 20% and increases to 60-80% after 4 contacts. From male to female the risk is estimated to be 50-70%.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	115	65	127	159	191
Black	210	227	378	433	382
Hispanic	231	75	129	208	268
Asian	1	5	7	9	10
Native Am	0	1	1	2	3
Other / Not Specified	338	365	431	466	660
Age Group					
<1	0	0	1	0	0
1-4	2	1	0	2	0
5-9	1	0	2	1	0
10-14	14	4	13	23	8
15-19	216	196	307	323	384
20-24	262	257	326	431	519
25-29	179	118	173	196	279
30-34	103	80	94	129	159
35-39	64	39	69	79	66
40-44	31	17	39	64	47
45-54	17	22	37	24	40
55-64	2	3	7	5	11
≥65	4	1	5	0	1
Not Specified	0	0	0	0	0
Total	895	738	1073	1277	1514

HP 2010 Objective: 19 cases per 100,000 population

Incidence Rates for Gonorrhea in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

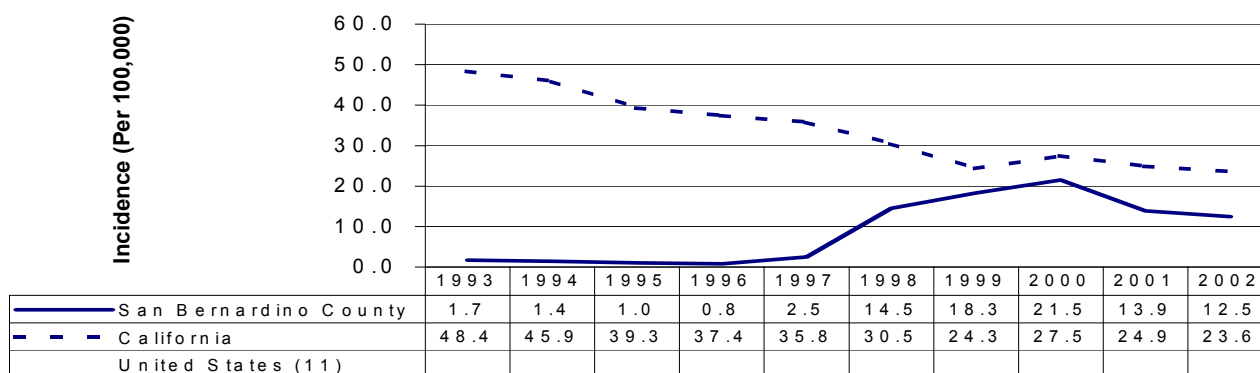
Diseases Transmitted by Sexual Contact

Non-Gonococcal Urethritis

- NGU may be diagnosed in men who have signs and symptoms of urethritis and also test negative for gonococcal infection.
- Chlamydia has been isolated in 20-40% of NGU cases in heterosexual men, and less commonly in men who have sex with men. Other less common causes of NGU are *Ureaplasma urealyticum*, *Trichomonas vaginalis*, and *Herpes simplex virus*.
- Sixty percent of the cases reported in 2002 were in men age 20-34 years.
- NGU and gonococcal infection have an increased incidence during the summer months, presumably due to increased sexual activity.
- NGU is more common than gonococcal infection among heterosexual men and groups of higher socioeconomic status.
- Approximately 50% of men with NGU are negative for Chlamydiae.
- In 20-30% of men with NGU, prostatic involvement is seen, and is usually asymptomatic.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	29	50	49	26	29
Black	42	40	69	50	44
Hispanic	33	49	43	36	24
Asian	0	0	2	1	0
Native Am	0	1	1	0	0
Other / Not Specified	16	15	22	11	17
Age Group					
<1	0	0	0	0	1
1-4	0	0	0	0	0
5-9	1	0	0	0	0
10-14	0	1	0	0	0
15-19	11	11	13	3	6
20-24	30	38	47	35	24
25-29	23	36	38	14	23
30-34	13	16	26	24	22
35-39	16	20	20	20	14
40-44	5	16	14	14	13
45-54	19	14	24	12	9
55-64	0	3	4	2	2
≥65	2	0	0	0	0
Not Specified	0	0	0	0	0
Total	120	155	186	124	114

Incidence Rates ⁽¹⁴⁾ for Non-Gonococcal Urethritis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Sexual Contact

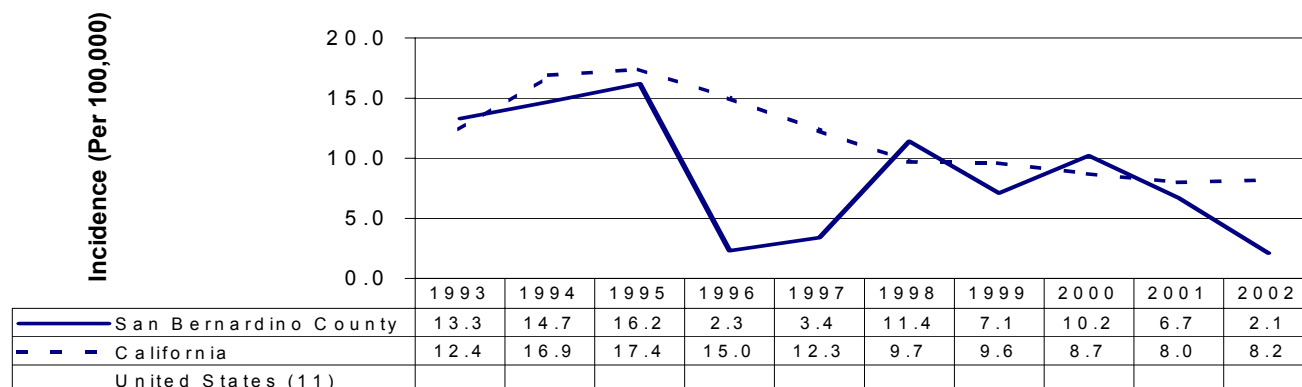
Pelvic Inflammatory Disease

- Pelvic Inflammatory Disease (PID) is an infection of the cervix and the vagina that ascends to the endometrium and the fallopian tubes. PID can be primary, the result of an STI, or secondary, the result of an invasive procedure or use of an IUD.
- Chlamydia (CT) and Gonorrhea (GC) are the most common causes of PID, although other altered vaginal flora will also cause PID. These PID cases are in women who did not have CT or GC.
- PID is uncommon during pregnancy, related to physical changes that occur during gestation that isolate and seal the uterus off from other structures.
- In a study from the University of Washington, PID patients were later found to have 7 times the risk of ectopic pregnancy and 8 times the risk of hysterectomy.
- Prevention of PID involves control of gonococcal and chlamydial infections in the population, use of barrier contraceptives, access to appropriate testing, and treatment of sex partners.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	13	7	8	12	4
Black	10	3	3	9	3
Hispanic	26	8	15	6	8
Asian	0	0	1	0	1
Native Am	0	0	0	0	0
Other / Not Specified	45	42	61	32	3
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	2	0	0	1	0
15-19	26	17	12	12	3
20-24	26	18	19	14	4
25-29	19	10	16	9	2
30-34	9	5	17	10	5
35-39	7	3	14	3	2
40-44	3	4	6	6	2
45-54	2	3	4	4	0
55-64	0	0	0	0	1
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	94	60	88	59	19

HP 2010 Objective = Reduce the proportion to 5% of females who have ever required treatment for pelvic inflammatory disease (PID).

Incidence Rates ⁽¹⁵⁾ for Pelvic Inflammatory Disease in San Bernardino County, California and the United States, 1993-2002



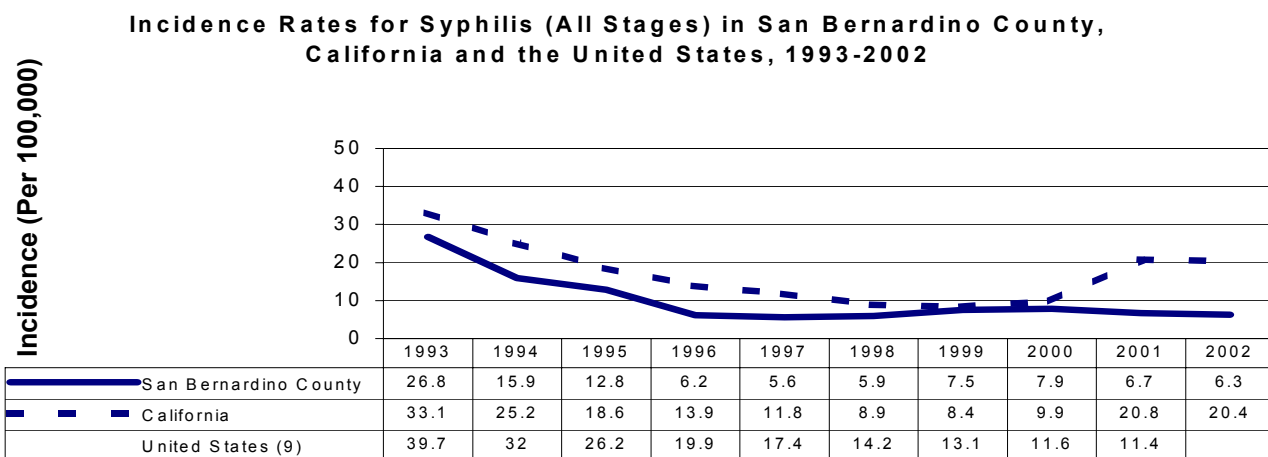
San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Sexual Contact

Syphilis, All Stages

- Syphilis is a sexually transmitted illness caused by the spirochete *Treponema pallidum*. Transmission may also occur from kissing, close contact with an active lesion and in utero via the placenta.
- The illness is characterized by several stages involving skin lesions, and constitutional symptoms. Later stages may involve granulomatous lesions in multiple organs, and neurological and cardiovascular complications. The illness may also enter latent periods of silent progression.
- Theories of the origins of the spirochete include spread from the New World to the Old World via explorer's ships or spread throughout Europe due to increasing clustering of populations in urban centers.
- In 1900, syphilis was the major cause of central nervous system and heart-related disease among middle-aged persons. Prior treatments used arsenic, mercury, bismuth, and therapies to induce fever in the patient. In 1927 the Nobel Prize recipient described use of malarial injections to treat neurosyphilis.
- Infection of the fetus may result in stillbirth, neonatal illness or death, or latent disease.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	12	26	15	5	14
Black	21	30	29	22	10
Hispanic	41	38	46	65	68
Asian	3	2	4	5	6
Native Am	0	0	1	2	0
Other /					
Not Specified	18	29	41	25	17
Age Group					
<1	3	1	1	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	6	2	4	2	6
20-24	4	7	12	6	8
25-29	19	11	13	11	9
30-34	12	26	23	18	18
35-39	11	35	31	21	22
40-44	13	13	17	17	15
45-54	17	18	19	29	21
55-64	7	8	9	11	9
≥65	3	4	7	9	7
Not Specified	0	0	0	0	0
Total	95	125	136	124	115



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Sexual Contact

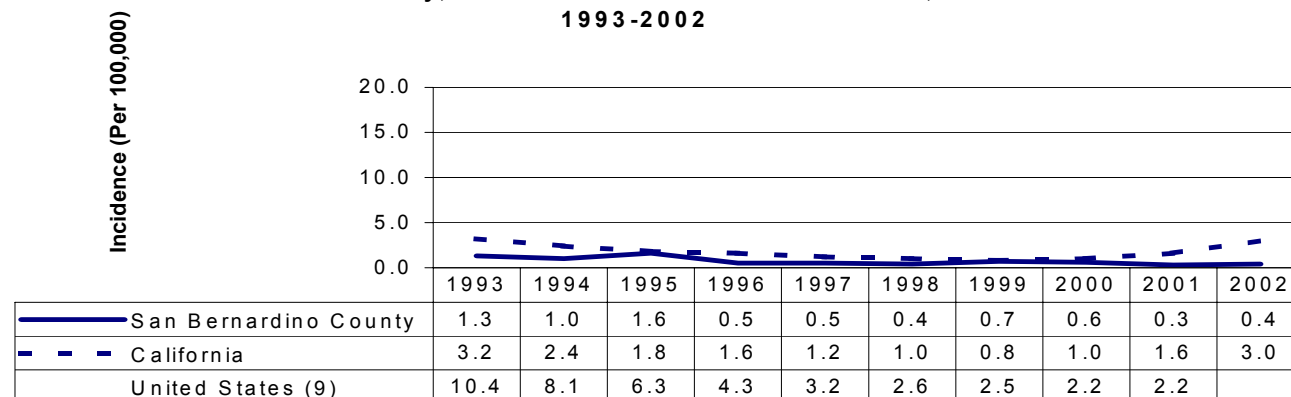
Syphilis, Primary/Secondary

- The primary stage of infection is characterized by the appearance of a nonpainful skin lesion at the site of inoculation and regional lymphadenopathy lasting 3-6 weeks.
- The number of spirochetes required to cause infection varies from patient to patient. The lesions appear after the organism divides every 30-33 hours reaching concentrations of 10x7 organisms per gram of tissue.
- Secondary syphilis occurs 2-8 weeks after the lesion appears and consists of low grade fever, malaise, pharyngitis, anorexia, weight loss and arthralgias. There are also skin lesions of several types present on the trunk and extremities. This stage has the greatest number of treponemes present in the blood.
- Approximately 40% of patients in the secondary stage of syphilis have some evidence of central nervous system involvement including visual disturbances, hearing loss, tinnitus, and facial weakness.
- In 2002, County cases consisted of 2 primary and 5 secondary cases. These cases consisted of 2 females and 5 males.
- In the US, outbreaks continue to occur among men who have sex with men.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	1	8	2	0	2
Black	4	1	5	1	0
Hispanic	2	1	2	2	4
Asian	0	0	0	0	1
Native Am	0	0	0	0	0
Other /					
Not Specified	0	2	1	2	0
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	1	1	1	0	2
20-24	1	3	1	1	0
25-29	2	1	2	0	0
30-34	2	1	1	2	1
35-39	0	2	4	2	3
40-44	1	4	0	0	0
45-54	0	0	1	0	1
55-64	0	0	0	0	0
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	7	12	10	5	7

HP 2010 Objective: 0.2 cases per 100,000 population

Incidence Rates for Primary & Secondary Syphilis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

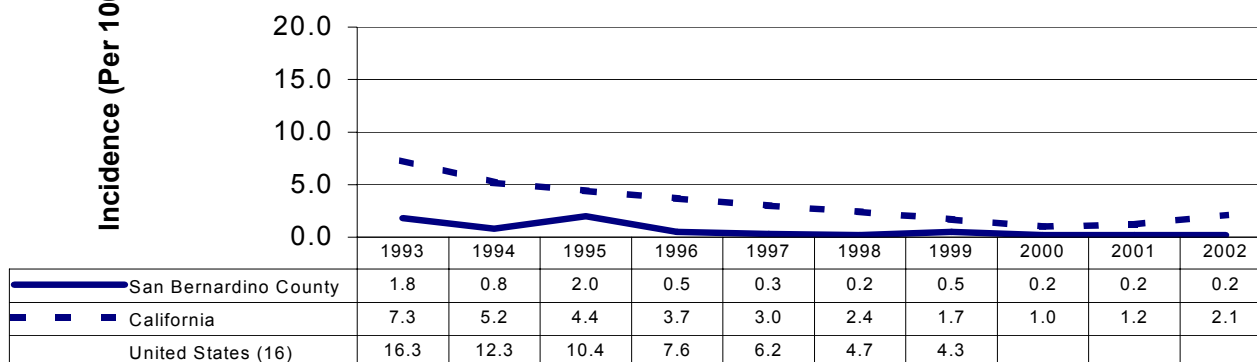
Diseases Transmitted by Sexual Contact

Syphilis, Early Latent

- The latent stage is divided into early latent and late latent stages where illness is subclinical and may be detected only by serological findings.
- During this stage, FTA-abs, TPHA, MHATP, ELISA, and TPI antibody tests are positive, however CNS findings and chest x-rays are normal.
- Early latent syphilis covers the first year after infection when relapses may occur. While relapses can occur up to 4 years after contact, 75-90% of the relapses occur in the first year, and are a result of changes in cellular immunity.
- Mucocutaneous relapses are the most common. As a result of the potential for relapse, patients are still considered infectious during this stage.
- Pregnant women may transmit the spirochete in utero to their fetus during this stage. Blood received from a donor with early latent syphilis may also cause infection in the recipient.
- Of the four County cases reported in 2002, 2 are female and 2 are male.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	1	2	1	0	3
Black	1	0	1	2	0
Hispanic	2	3	2	1	1
Asian	0	0	0	0	0
Native Am	0	0	0	0	0
Other / Not Specified	0	4	0	0	0
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	0	0	0	0	1
20-24	0	1	0	0	2
25-29	2	1	3	0	0
30-34	1	5	0	1	0
35-39	0	2	1	0	0
40-44	1	0	0	1	1
45-54	0	0	0	1	0
55-64	0	0	0	0	0
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	4	9	4	3	4

Incidence Rates for Early Latent Syphilis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Respiratory Secretions

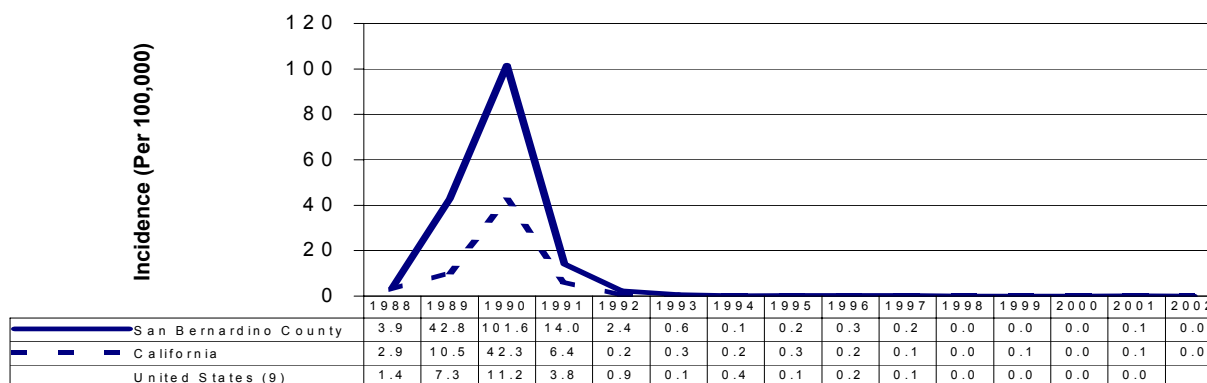
Measles (Rubeola)

- Measles is a highly communicable viral disease caused by the rubeola virus. It is spread by airborne or droplet exposure, and direct contact with nasal or throat secretions of infected persons.
- Measles has been dramatically controlled in the United States since the introduction of the live attenuated vaccine in 1963, but remains a serious problem in developing countries.
- Measles virus is closely related to the viruses causing canine and phocine distemper and rinderpest of cattle.
- A total of 116 cases of measles were reported in the US in 2001 (US data not yet available for 2002). Of those cases, 54 (46%) were internationally imported, 12 other cases had virologic evidence of importation. The remaining 25 cases were classified as unknown source cases because no link to importation was detected.
- Measles accounts for approximately 800,000 deaths annually worldwide. The US continues to have very few cases of measles and the low spread of disease in the population when a case of measles does occur indicates that the level of population immunity is high. Sustaining high levels of vaccination is important in preventing disease spread when cases do occur.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	0	0	0	1	0
Black	0	0	0	0	0
Hispanic	0	0	0	0	0
Asian	0	0	0	0	0
Native Am	0	0	0	0	0
Other / Not Specified	0	0	0	0	0
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	0	0	0	0	0
20-24	0	0	0	0	0
25-29	0	0	0	0	0
30-34	0	0	0	0	0
35-39	0	0	0	1	0
40-44	0	0	0	0	0
45-54	0	0	0	0	0
55-64	0	0	0	0	0
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	0	0	0	1	0

HP 2010 Objective = 0 cases

Incidence Rates for Measles (Rubeola) in San Bernardino County, California and the United States, 1988-2002



San Bernardino County Reported Communicable Diseases 2002

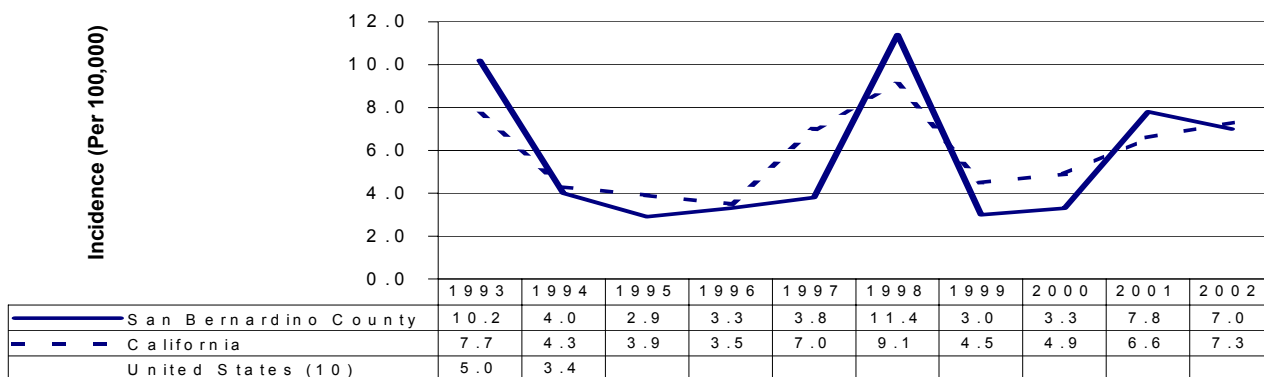
Diseases Transmitted by Respiratory Secretions

Meningitis, Viral

- In the US a number of viruses are implicated as etiologic agents of viral meningitis, including enteroviruses such as coxsackieviruses and echoviruses, varicella, herpesvirus, and mumps. Under optimal conditions, specific identification can be made in about half the cases using serologic and isolation techniques.
- Viral meningitis is rarely serious, and is a relatively common illness in the US. Viral meningitis was reported between 6 to 21 times more often than meningococcal meningitis in San Bernardino County from 1998 to 2002.
- County cases increased 2-fold in 2000 - 2001. In 2002 the majority of cases were reported in 0-14 year olds (49%). Among young children the viruses are mainly spread through contact with infected stool, particularly among children who are not yet toilet trained. Adults may become ill or spread the virus if they do not wash their hands well after changing diapers.
- Seventeen cases in 2002 tested positive for an enterovirus. Of those 17, 7 (41%) tested positive for echovirus.
- Viral meningitis is a notifiable disease in California, but not in the US since 1995.
- Infection with enteroviruses is more common in the summer and early fall.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	51	21	25	40	44
Black	12	5	6	33	20
Hispanic	84	16	18	50	49
Asian	5	2	4	3	2
Native Am	0	0	0	1	0
Other / Not Specified	35	6	3	12	13
Age Group					
<1	20	8	7	25	15
1-4	18	4	5	13	7
5-9	54	7	8	29	26
10-14	25	6	8	26	15
15-19	12	4	4	11	8
20-24	7	2	5	7	9
25-29	16	5	6	8	14
30-34	7	3	4	6	10
35-39	7	4	5	3	4
40-44	7	2	2	4	8
45-54	9	5	2	6	8
55-64	1	0	0	1	4
≥65	4	0	0	0	0
Not Specified	0	0	0	0	0
Total	187	50	56	139	128

Incidence Rates for Viral Meningitis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Respiratory Secretions

Meningococcal Disease

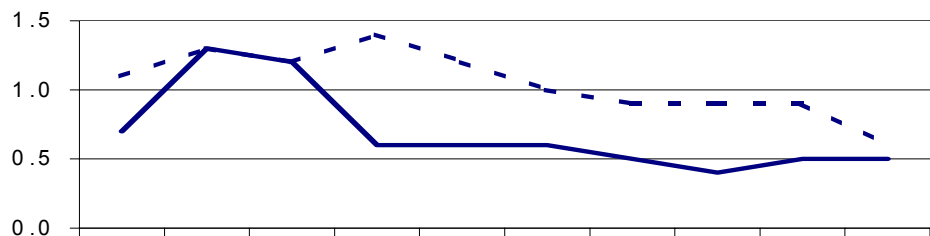
- The illness was first described in 1805 in Geneva. The organism was first isolated in 1887 by Weichselbaum.
- Meningococcal infection is caused by spread of large respiratory droplets containing the gram negative diplococcus *Neisseria meningitidis*.
- Of 9 county cases in 2002, 3 were group B, 2 Y, 1 C, 1 W135 and 2 were not grouped.
- In the US, the case fatality rate is 8%. Of the 9 2002 County cases, 1 individual died.
- Estimates are that 5-10% of endemic populations have asymptomatic nasopharyngeal carriage. In one study the median duration of carriage was 9.6 months.
- There are several theories as to why the organism causes severe illness in some and not others. Those individuals who are newly infected may be at higher risk. Another theory is that the carrier state is an immunizing process. There are differing opinions as to whether prior respiratory illness may or may not be a risk factor for invasive disease.
- In 2002, the number of contacts given antibiotic prophylaxis as a result of exposure to a case ranged from 5 to 37. Two of the cases in 2002 were co-workers.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	1	4	3	5	4
Black	0	3	1	0	0
Hispanic	7	0	2	2	4
Asian	0	0	1	0	1
Native Am	0	0	0	0	0
Other / Not Specified	1	1	0	1	0
Age Group					
<1	5	2	0	2	2
1-4	1	1	3	1	1
5-9	2	1	0	0	0
10-14	0	1	1	0	1
15-19	0	2	1	0	1
20-24	1	0	2	0	0
25-29	0	0	0	1	1
30-34	0	0	0	1	0
35-39	0	0	0	0	0
40-44	0	0	0	1	0
45-54	0	0	0	1	0
55-64	0	1	0	0	1
≥65	0	0	0	1	2
Not Specified	0	0	0	0	0
Total	9	8	7	8	9

HP 2010 Objective: 1 case per 100,000 population

Incidence Rates for Meningococcal Disease in San Bernardino County, California and the United States, 1993-2002

Incidence (Per 100,000)



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
San Bernardino County	0.7	1.3	1.2	0.6	0.6	0.6	0.5	0.4	0.5	0.5
California	1.1	1.3	1.2	1.4	1.2	1.0	0.9	0.9	0.9	0.6
United States (9)	1.0	1.1	1.2	1.3	1.2	1.0	0.9	0.9	0.8	

San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Respiratory Secretions

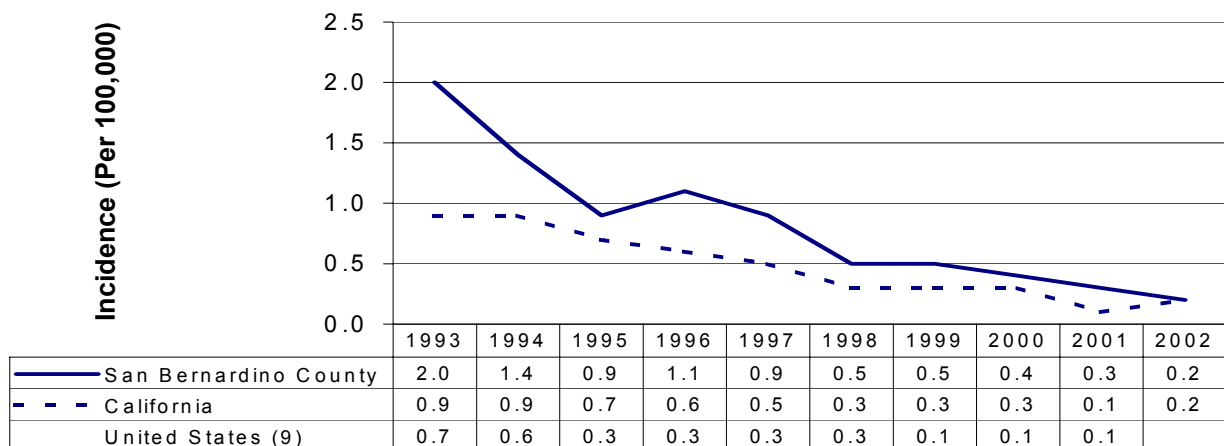
Mumps

- Mumps is characterized by swelling of one or more of the parotid glands, although approximately one third of illnesses have none.
- Infection in adults is more likely to be severe, with orchitis a common complication in males. Infection during the first trimester of pregnancy is associated with increased spontaneous abortion.
- The mumps virus can be transmitted through direct contact with infected droplet nuclei or saliva, or by airborne transmission. It is fairly contagious and can be compared to influenza for communicability. Mumps has been reported in different seasons, but usually peaks January-May.
- Prior to vaccine licensure in 1967 approximately 212,000 cases occurred annually. Since 1989 when recommendations for a second dose of MMR were instituted there has continued to be a steady decline in cases to a provisional total of 266 cases in the US in 2001 – the lowest annual total ever reported.
- From 1998 to 2002, the majority of County cases have been in school-age children, which may reflect reporting by school nurses.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	1	1	4	2	1
Black	0	0	0	1	0
Hispanic	4	6	2	2	2
Asian	0	1	0	0	0
Native Am	0	0	0	0	0
Other / Not Specified	3	0	0	0	1
Age Group					
<1	0	0	0	0	0
1-4	1	0	0	1	1
5-9	4	3	3	2	1
10-14	2	4	0	0	1
15-19	0	0	0	0	0
20-24	0	0	1	0	0
25-29	0	0	0	0	0
30-34	0	0	0	0	0
35-39	0	0	0	0	0
40-44	1	0	1	2	0
45-54	0	1	1	0	1
55-64	0	0	0	0	0
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	8	8	6	5	4

HP 2010 Objective: 0 cases

Incidence Rates for Mumps in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Respiratory Secretions

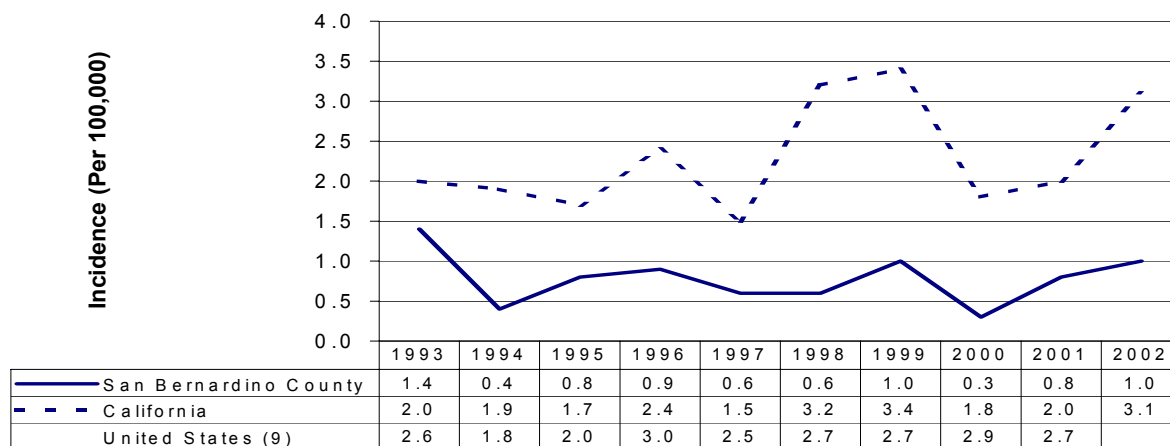
Pertussis

- Descriptions of the illness whooping cough go back to 1500. In China the illness is called "the cough of 100 days."
- Bordetella consists of 7 species of which 2, *B. pertussis* and *B. parapertussis* cause most human illness. The bacteria produces a toxin that paralyzes the hairs of the respiratory tract causing respiratory secretions to accumulate.
- Since 1980, the number of reported cases of pertussis in infants <7 months, and in adolescents and adults has increased dramatically in some states. This could be due to better reporting, use of more sensitive tests or an increase in infections. In San Bernardino County, the highest rate is in infants <1 year (42 cases per 100,000).
- Waning immunity is a concern 5-10 years after receipt of the vaccine. Older children and adults and previously immunized individuals may have only a cough lasting >7 days. In 2001, 52% of identified cases in the US were in individuals 10 years or older.
- Nasopharyngeal swab and culture are the preferred method of diagnosis. However, studies have shown that after 7 days of treatment, PCR can detect the bacteria in 56% of samples even when cultures are negative.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	4	3	3	3	5
Black	1	0	0	0	3
Hispanic	4	12	2	9	8
Asian	0	0	0	0	0
Native Am	0	0	0	0	0
Other / Not Specified	1	1	0	2	3
Age Group					
<1	8	14	4	13	14
1-4	1	0	1	1	3
5-9	0	1	0	0	0
10-14	1	1	0	0	1
15-19	0	0	0	0	0
20-24	0	0	0	0	1
25-29	0	0	0	0	0
30-34	0	0	0	0	0
35-39	0	0	0	0	0
40-44	0	0	0	0	0
45-54	0	0	0	0	0
55-64	0	0	0	0	0
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	10	16	5	14	19

HP 2010 Objective: 2,000 cases

Incidence Rates for Pertussis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Respiratory Secretions

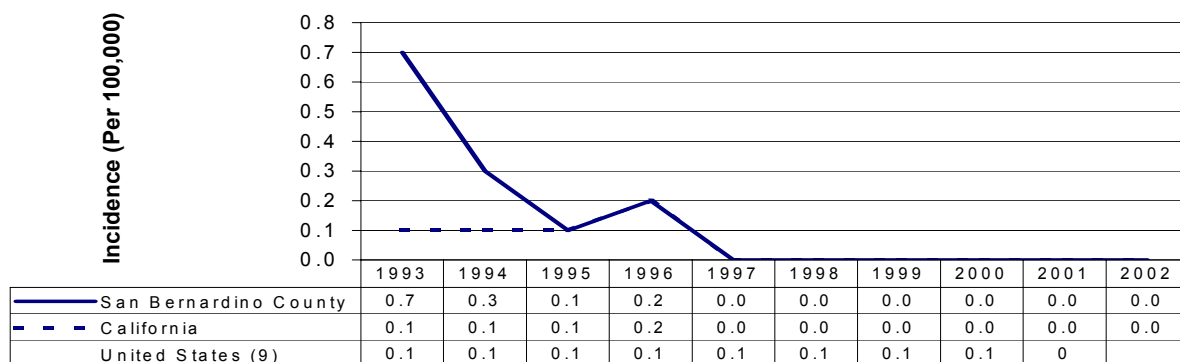
Rubella

- Rubella is spread via airborne transmission or respiratory droplets of infected persons. Rubella is a human disease and has no animal reservoir or evidence of insect transmission.
- Rubella is most contagious when the rash is erupting, though the virus can shed from 7 days before to 5-7 days or more after rash onset. Incidence is highest in late winter and early spring.
- Congenital rubella poses the greatest risk to unborn children as the virus can attack any area of the body. Deafness is the most common manifestation of congenital rubella infection. Babies who acquire rubella congenitally can shed large amounts of virus in body secretions for up to one year and can therefore transmit the virus to susceptible persons caring for them.
- Rubella is a vaccine-preventable disease, and is part of the MMR vaccine series usually given twice - at one year of age, and then at school age.
- Prior to vaccine licensure in 1969, rubella epidemics occurred every 6-9 years. Since the mid-1990s most reported cases have been in Hispanic young adults who were born in areas where rubella vaccine is not routinely given.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnic					
White	0	0	0	0	0
Black	0	0	0	0	0
Hispanic	0	0	0	0	0
Asian	0	0	0	0	0
Native Am	0	0	0	0	0
Other /					
Not Specified	0	0	0	0	0
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	0	0	0	0	0
20-24	0	0	0	0	0
25-29	0	0	0	0	0
30-34	0	0	0	0	0
35-39	0	0	0	0	0
40-44	0	0	0	0	0
45-54	0	0	0	0	0
55-64	0	0	0	0	0
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	0	0	0	0	0

HP 2010 Objective = 0 cases

Incidence Rates for Rubella in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Respiratory Secretions

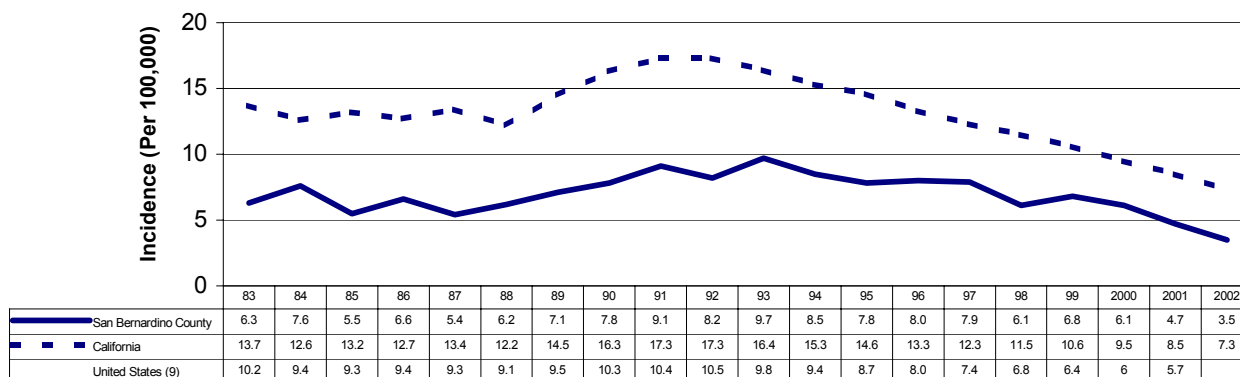
Tuberculosis

- Tuberculosis (TB) is a bacterial disease spread by infected respiratory droplets. TB primarily affects and is spread by the respiratory route, but may manifest anywhere in the body. Children and people who are immunocompromised are at greater risk of developing extra-pulmonary tuberculosis. In San Bernardino County in 2002, 23% of the TB cases had extrapulmonary disease.
- Tuberculosis incidence continues to decline overall in the US population. In San Bernardino County foreign-born persons make up the majority of TB cases (59% 38/64 of cases are foreign-born). The majority of foreign-born cases come from Mexico, the Philippines and Vietnam.
- Asian/Pacific Islanders, and the elderly continue to have the greatest incidence of TB in San Bernardino County. Asian/Pacific Islanders have an incidence of 23.8 cases per 100,000 versus 4.3 among Blacks, 3.8 among Hispanics, and 0.76 in Whites. In people aged 65 years or more the TB incidence is 9.8 cases per 100,000.
- TB disease and Latent Tuberculosis Infection (LTBI) are frequently confused. TB disease is communicable, whereas LTBI is not, and is diagnosed based on a positive skin test and absence of clinical illness.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	18	15	18	16	7
Black	13	17	13	7	7
Hispanic	44	45	48	31	24
Asian	26	36	25	26	24
Native Am	0	0	0	0	0
Other /					
Not Specified	0	0	0	3	2
Age Group					
<1	0	1	1	1	0
1-4	7	4	2	7	1
5-9	1	2	2	2	0
10-14	2	0	1	2	1
15-19	5	3	3	3	1
20-24	7	3	8	1	6
25-29	5	10	7	4	7
30-34	11	8	8	5	6
35-39	9	7	9	8	8
40-44	9	10	7	14	1
45-54	13	19	14	8	7
55-64	9	18	13	7	11
≥65	23	28	29	21	15
Not Specified	0	0	0	0	0
Total	101	113	104	83	64

HP 2010 Objective: 1 case per 100,000 population

Incidence Rates for Tuberculosis in San Bernardino County, California and the United States, 1983-2002



San Bernardino County Reported Communicable Diseases 2002

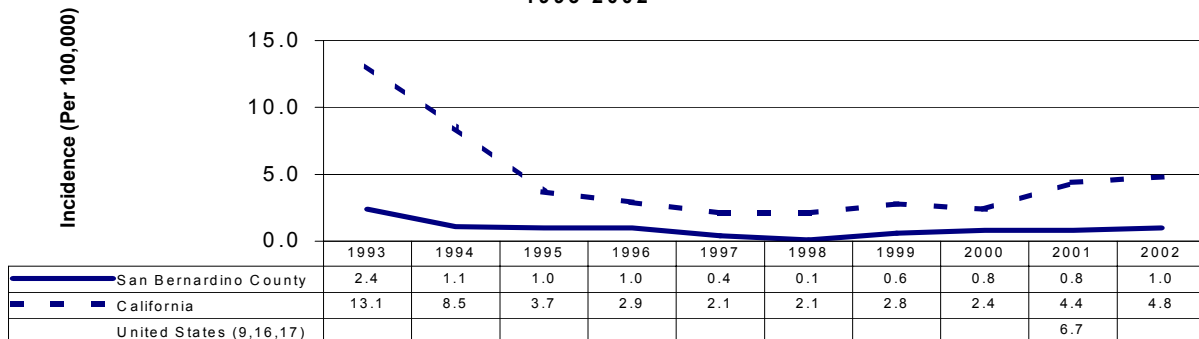
Diseases Associated with Environmental Factors

Coccidioidomycosis

- Coccidioidomycosis is known by several names, including: Valley fever, San Joaquin fever, California fever, Desert fever, Desert rheumatism, and Cocci.
- Coccidioides immitis* is a dimorphic fungus found only in the Western Hemisphere from California to southern Texas. It can also be found in Central and South America.
- Inhaled spores are the primary mode of infection and may result in active or inapparent infection.
- Symptomatic infection (40% of cases) usually presents as an influenza-like illness with fever, cough, headaches, rash and myalgias. It can also present as an acute pneumonia, rarely as a chronic pneumonia, or as a disseminated form affecting meninges, skin and bone.
- Epidemics have been associated with disruption of infected soil either by human activity, such as archeological digs, or after natural events, such as dust storms and earthquakes. Infections have also been associated with total winter rainfall, with more cases occurring in the summers after wetter winters.
- Groups at high risk for developing disseminated coccidioidomycosis are African Americans, Mexican-Americans, Filipinos, Native Americans, pregnant women in the third trimester and immunocompromised patients including those with AIDS.

San Bernardino County					
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	0	1	2	4	4
Black	0	2	1	1	5
Hispanic	1	1	5	2	3
Asian	0	0	1	1	0
Native Am	0	0	0	2	0
Other /					
Not Specified	1	6	4	5	7
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	0	0	3	0	1
20-24	0	0	0	0	2
25-29	0	0	0	0	0
30-34	0	1	1	2	0
35-39	0	1	3	2	1
40-44	1	1	0	2	0
45-54	0	2	2	3	8
55-64	0	4	3	2	4
≥65	1	1	1	4	3
Not Specified	0	0	0	0	0
Total	2	10	13	15	19

Incidence Rates for Coccidioidomycosis in San Bernardino County, California and the United States, 1993-2002



San Bernardino County Reported Communicable Diseases 2002

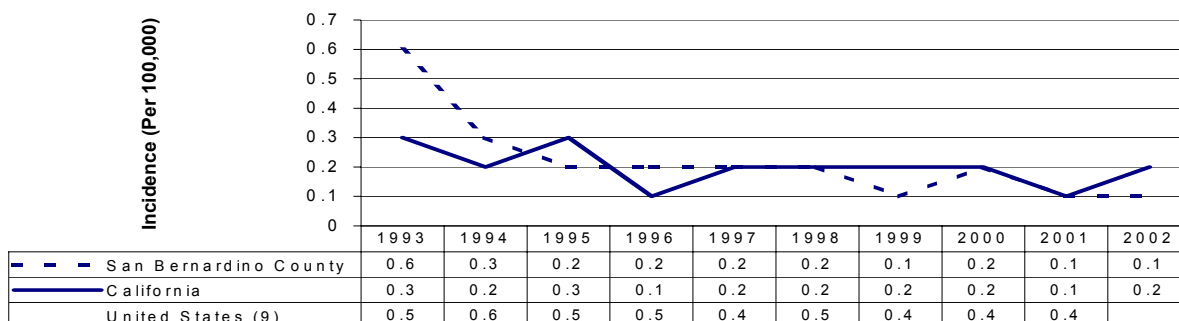
Diseases Associated with Environmental Factors

Legionellosis

- There are several *Legionella* species that cause infection in humans when contaminated water is inhaled in aerosols. Legionnaire disease is a severe form of legionellosis characterized by pneumonia. Pontiac fever is self-limiting and requires no treatment.
- *Legionella* organisms may persist in soil or water, but thrive in warm aquatic environments. Water tanks or cooling units may contain *Legionella*, especially if the water is between 32-45 degrees C.
- Legionnaire disease is a reportable condition in most states, but estimates are that only 2-10% of cases are reported.
- Infection has been linked to showers, air conditioning, cooling towers, evaporative condensers, humidifiers, whirlpool spas, respiratory therapy devices and decorative fountains.
- Approximately 23% of cases are nosocomial, while 10-20% can be linked to outbreaks.
- Risk factors for infection include smoking, chronic lung disease, advanced age, and immunosuppression.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	0	2	3	1	0
Black	0	0	1	0	1
Hispanic	1	0	0	0	1
Asian	0	0	0	0	0
Native Am	0	0	0	0	0
Other /					
Not Specified	2	0	0	0	0
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	0
5-9	0	0	0	0	0
10-14	0	0	0	0	0
15-19	0	0	0	0	0
20-24	0	0	0	0	0
25-29	0	0	0	0	0
30-34	0	0	0	0	0
35-39	0	0	0	0	0
40-44	0	0	1	0	1
45-54	0	1	2	0	1
55-64	2	0	0	0	0
≥65	1	1	1	1	0
Not Specified	0	0	0	0	0
Total	3	2	4	1	2

Incidence Rates for Legionellosis in San Bernardino County, California and the United States, 1993-2002

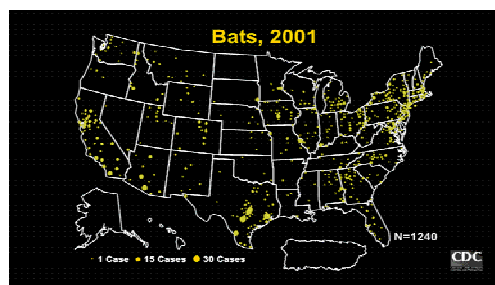
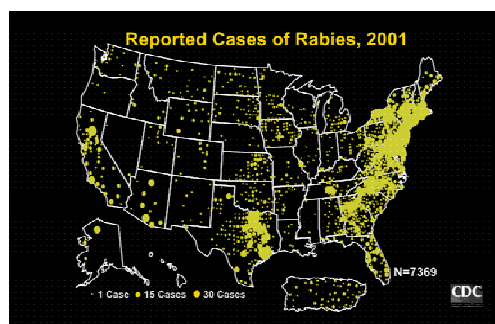


San Bernardino County Reported Communicable Diseases 2002

Diseases Transmitted by Mammalian Vector

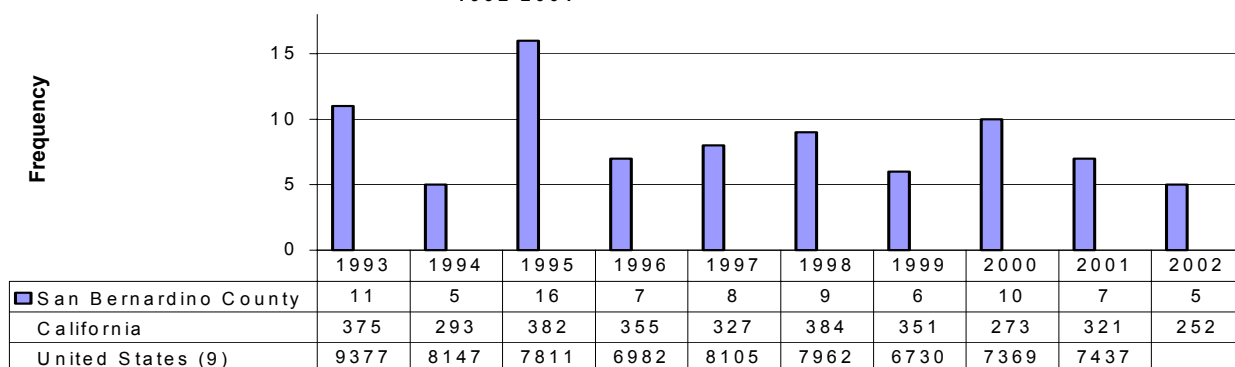
Rabies, Animal

- During 2001, 49 states and Puerto Rico reported 7,437 cases of rabies in animals and 1 case in a human being. This case was a San Diego County resident discovered retrospectively by a California state program doing encephalitis surveillance. During 2001-2002, 12 animals in San Bernardino County tested positive for rabies, including 11 bats and 1 fox.
- From 1990 to 2002, 36 cases of human rabies were diagnosed in the US. Of these, 27 cases were due to variants of the virus associated with bats. In only 2 of these 27 human cases was there history of a bite. Lack of awareness of a bite may be related to difficulty in obtaining histories from critically ill patients, limited injury if any from very small sharp bat teeth, and viral mechanisms that increase virulence associated with the silver-haired/ eastern pipistrelle bat variant.



- Post-exposure prophylaxis guidelines now recommend treatment for anyone who might be unaware of a bite or presence of a bat, such as children, or an adult who wakes up with a bat in the room. These guidelines were broadened in response to cases among people who could not recall a known exposure (such as a bite) of a bat. Wherever possible, the bat should be submitted for testing to a local public health laboratory.
- In California in 2002, 252 rabid animals were reported. Most cases were among bats (183), and skunks (62). In addition, 3 foxes, 2 dogs and 2 cats were also positive.
- The epizootic spread of rabies in the raccoon population has continued to extend westward from the eastern US. Currently the line of demarcation extends from the Ohio border in the north, across West Virginia, and then south just outside the states of Kentucky and Tennessee. Aggressive measures to control this spread by oral vaccination through baited meat are showing signs of success.
- Control measures for preventing rabies spread among animals or from animals to humans continues to be necessary, and includes

Incidence of Animal Rabies in San Bernardino County, California and the United States, 1992-2001



San Bernardino County Reported Communicable Diseases 2002

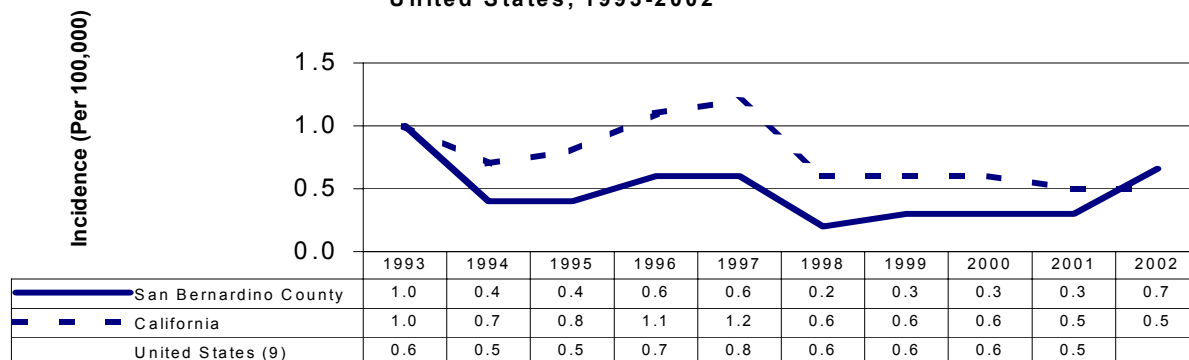
Diseases Transmitted by Arthropod Vector

Malaria

- Malaria is a febrile disease caused by a parasite in the genus *Plasmodium*. It is transmitted to humans through the bite of the *Anopheles sp.* mosquito. In Southern California, *A. hermsi* is the species of *Anopheles* that can transmit malaria. There have been no cases of locally acquired malaria in San Bernardino County.
- Malaria occurs in over 100 countries and territories. More than 40% of the people in the world are at risk. The World Health Organization estimates that yearly 300-500 million cases of malaria occur and more than 1 million people die. About 1,200 cases of malaria are diagnosed in the United States each year.
- There are four species of *Plasmodium* that can cause malaria. These are: *P. vivax*, *P. falciparum*, *P. ovale* and *P. malariae*. In San Bernardino, 58% (7/12) of cases were caused by *P. falciparum*, 25% (3/12) were caused by *P. vivax* and 17% (2/12) cases were caused by *P. malariae*. There were no cases caused by *P. ovale*. Most cases (67%) (8/12) were acquired in Nigeria, Africa.
- The most effective way to prevent malaria is taking proper prophylaxis. In San Bernardino County, 58% (7/12) individuals took prophylaxis, however, adherence to regime is unknown.

	San Bernardino County				
	1998	1999	2000	2001	2002
Race/Ethnicity					
White	1	1	2	2	1
Black	1	1	0	2	8
Hispanic	1	3	2	1	0
Asian	0	0	0	0	3
Native Am	0	0	0	0	0
Other /					
Not Specified	0	0	1	0	0
Age Group					
<1	0	0	0	0	0
1-4	0	0	0	0	1
5-9	0	1	0	0	1
10-14	0	0	0	0	1
15-19	1	1	0	0	3
20-24	1	1	1	1	0
25-29	0	1	0	0	0
30-34	1	0	1	0	1
35-39	0	0	0	0	0
40-44	0	1	2	0	1
45-54	0	0	0	4	4
55-64	0	0	1	0	0
≥65	0	0	0	0	0
Not Specified	0	0	0	0	0
Total	3	5	5	5	12

Incidence Rates for Malaria in San Bernardino County, California and the United States, 1993-2002



Section 3

Special Disease Focus:

1. Results of Juvenile Hall Get Tested Project

Prepared by Rhonda Spencer, MPH, Stephen Nozaki, MPH, and Alexander Taylor, MPH, AIDS/STD Program

2. Local Health Department Response to Bioterrorism in the US

Prepared by Alison Rue, MPH, Epidemiology Program

3. Hepatitis C Study

Prepared by Geneva Sagun, MPH, Epidemiology Program

4. Norovirus: An Emerging Pathogen

Prepared by Kim Woods, MPH, Epidemiology Program

Juvenile Hall Get Tested Project

Background

Sexually transmitted infections (STIs) are the most common reportable diseases in the United States and frequently, a source of adolescent morbidity. To reduce the burden of disease within the community, the Centers for Disease Control and Prevention (CDC) recommends targeted screening of populations with STI prevalence rates of 5% or greater. Important barriers for adolescents seeking testing and treatment of STIs include the absence of symptoms and the fear of seeking medical treatment. In up to 70% of females and 25% males, STIs may be present without symptoms.

In the San Bernardino County Department of Probation Juvenile Hall, all wards of the court are provided a physical within 96 hours of admission. Prior to this study, only those complaining of symptoms were evaluated for STIs. The purpose of this screening project was to determine the prevalence of *Chlamydia trachomatis* (Ct) and *Neisseria gonorrhoeae* (GC) among the wards of Juvenile Hall and decide whether or not to implement routine screening for all upon admission.

Methods

One thousand consecutive detainees were screened for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* using nucleic acid amplification (Chlamydia detection specificity = 98.1%, sensitivity = 97.1% and gonorrhea specificity = 98.1%, sensitivity = 97.1%). A urine specimen was collected and a standard questionnaire was completed for each juvenile offender. Chlamydia and gonorrhea fact sheets were provided along with a brief discussion of each infection and basic prevention techniques. Referrals for additional testing upon release were also offered.

All infections were reported to a staff nurse and treated per standing orders. A communicable disease investigator conducted follow-up interviews for contacts.

Results

One hundred and one (10%) of juveniles tested had Ct, GC or both. Ninety-three (9%) were found to be infected with Ct and 16 (2%) were found to be infected with GC. Eight (1%) were found to be co-infected with both. Eighty-two (88%) of those infected with Ct were asymptomatic

Twenty-two percent of females (n=38) screened and 8% of males (n=63) screened were infected with an STI. Females were 3.44 times more likely to be infected than males ($\chi^2 = 32.906$, $p < 0.001$). Eighty-four percent of infected females and 90% of infected males were asymptomatic.

Youths of color comprised 89% of those infected. Fourteen percent of African Americans (n=37) screened and 12% of Hispanics (n=53) were infected. Twenty-six percent of the youths of color were infected compared with 4% of Caucasians screened.

The infected juveniles ranged from 13 to 19 years of age with a median age of 16.5 years.

Thirty-four percent (n=34) of the infected juveniles reported having been screened in a juvenile hall clinic within the past 12 months suggesting a high degree of “recycling” through the juvenile justice system. Juveniles reporting having used Depo-Provera were 4.39 (Odds Ratio) times more

likely to be infected than those who did not. Juveniles reporting no use of any method for birth control were 2.54 (Odds Ratio) times more likely to be infected compared to those who used at least one form of birth control. There were no infections among youths who used birth control pills and condoms.

Twenty-seven percent of the infected population reported using condoms during their last sexual encounter compared to 34% of the non-infected population.

The average number of sex partners (past 12 months) for the infected population was 3.18, while the non-infected population had an average of 2.50.

Conclusion

- CDC recommends screening of populations with a prevalence of sexually transmitted infections (STIs) of 2% or more.
- 10% (n=101) of the 1,000 juveniles tested had one or more STIs. Eight-eight percent of those with an STI were asymptomatic. Without screening, these individuals would have remained unaware of their STI and may not have sought medical treatment.
- Females and people of color were over represented among the infected youths, suggesting societal/economic barriers in access to health care.
- The San Bernardino Department of Probation should implement routine screening for STIs for all admitted to its Juvenile Hall.

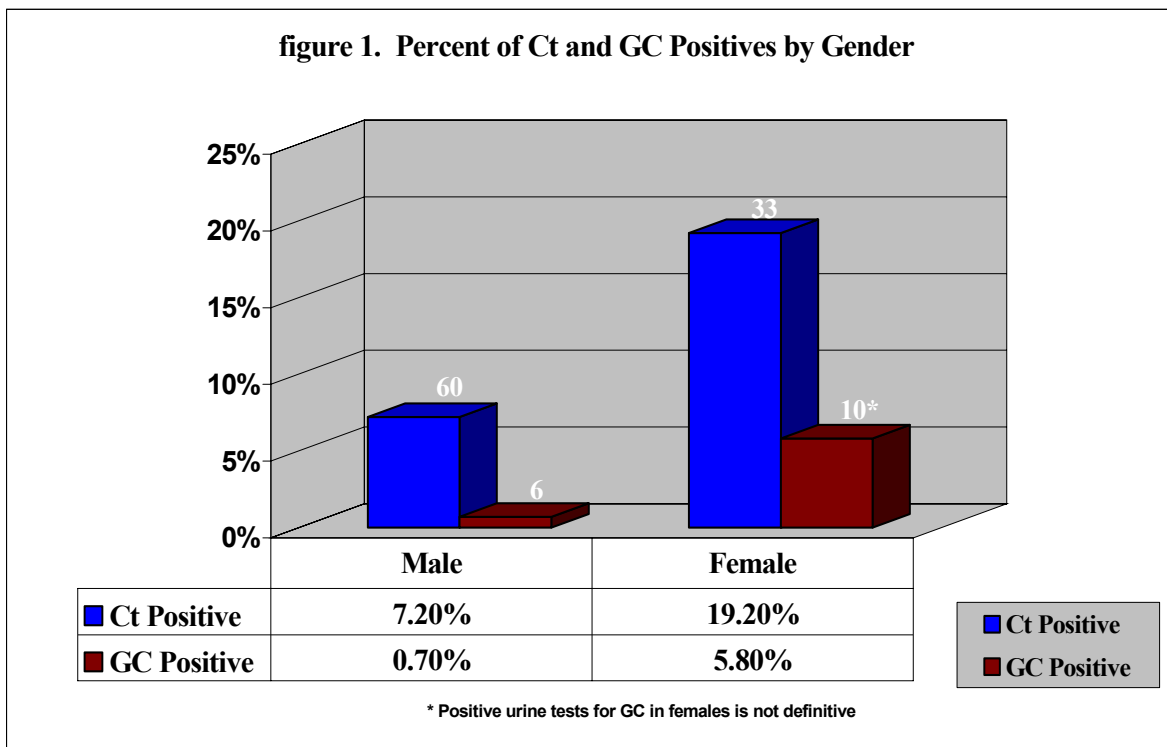


figure 2. Percent Asymptomatic and Symptomatic

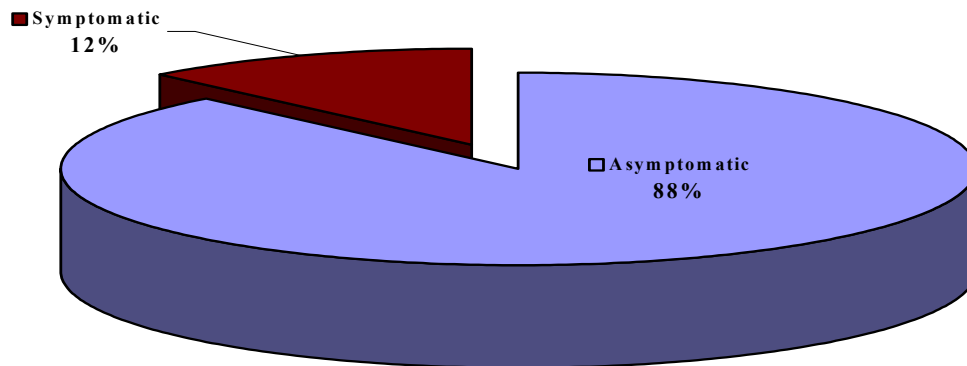
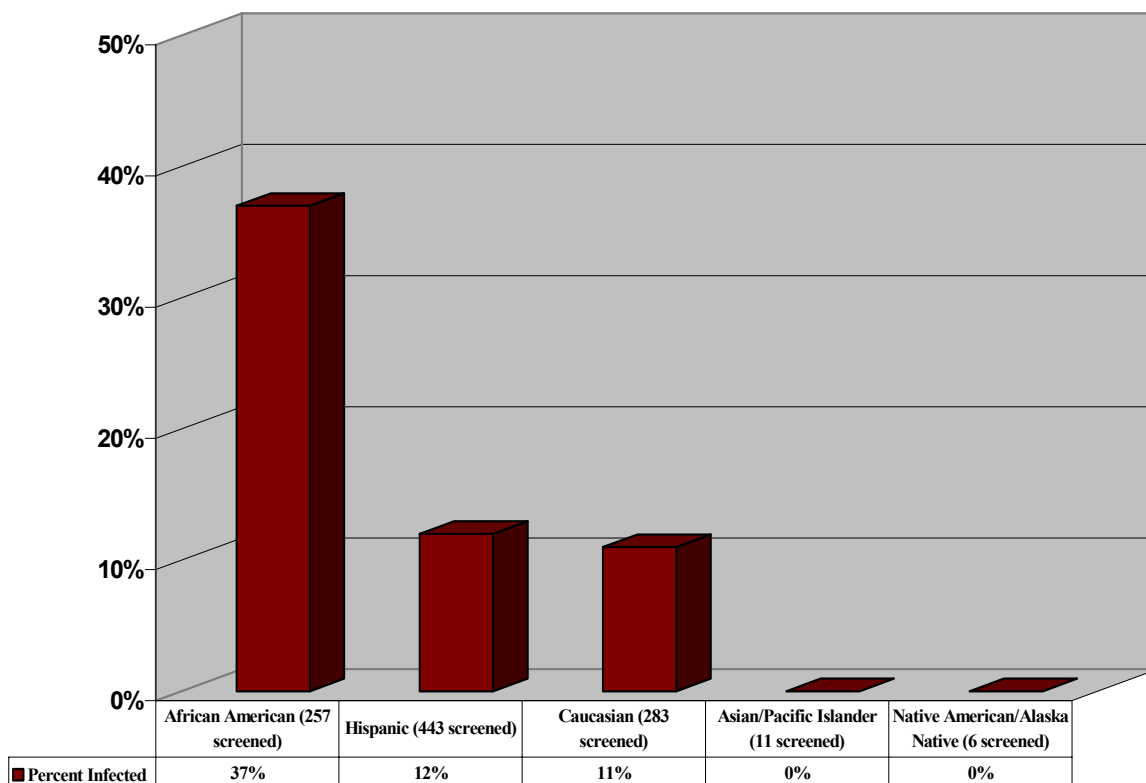


figure 3. Percent of Infected Juveniles by Race/Ethnicity



The Local Health Department Response to Bioterrorism in the US

In October of 2001, reports of cases of pulmonary and cutaneous anthrax, and letters containing spores in the Eastern US sparked nationwide concern about bioterrorism. In 1999 at the direction of the Centers for Disease Control and Prevention (CDC) and the California Department of Health Services (CDHS), San Bernardino and other counties began to implement practices in disease control designed to detect and respond to reports of unexplained illness or disease outbreaks.

Traditional Communicable Disease Reporting

Traditional disease reporting has been used for decades as a method to track diseases in the population, identify outbreaks or cases of unusual illness, and prevent spread of the illness to others. Disease reporting is based on a physician diagnosis or a laboratory result, and is submitted to Public Health immediately, or within 1 or 7 working days - depending on the disease. CDC, CDHS or the Local Health Department (LHD) can designate diseases as reportable. Examples of reportable diseases include cholera, salmonella, HIV, hepatitis A, *E. coli* O157:H7 and others, including those in this disease report. Public Health relies on physicians to identify unusual illnesses, and report them to Public Health.

Syndromic Surveillance

In the fall of 2000, San Bernardino County began a program of heightened symptom surveillance, referred to as “syndromic surveillance”. Each hospital emergency department (ED) is asked to collect the frequency of patients presenting to the ED with certain clusters of symptoms (syndromes), and then regularly submit their findings to Public Health. This surveillance is less specific, but more timely than standard surveillance in which diseases, not symptoms are reported. Syndromic surveillance is an active surveillance method used to compliment traditional reporting techniques. Syndromic surveillance in San Bernardino County has had two positive effects 1) improved communication between different hospital departments and the Public Health Department, and 2) enhanced knowledge about what is ‘normal’ at each hospital.

Integrated Response

San Bernardino County offices received hundreds of calls from the public, from private businesses and other government offices about suspicious letters, events, objects and powders. The best response to each possible event involved coordination between several different organizations including the local hospitals, law enforcement, HAZMAT and the fire department, the local and regional public health laboratories, the FBI, and if needed, public health Epidemiology. Each response was different and required a tailored assessment from several different agencies. San Bernardino County Public Health Laboratory tested over 140 powders from mid October to mid November, nothing was positive for Anthrax or any other unusual or infectious pathogen. Integrated responses such as these can drain Public Health resources and staff, but they also become routine and strengthen working relationships between all the agencies that respond.

The Future

The Federal government through CDC and CDHS are making increased funding available for enhanced disease surveillance in State health departments, LHDs and hospitals. More funding is also forthcoming for improved disaster response, including public health. With the promised funds public health will enhance the Epidemiology Program so that timely community disease and syndrome reporting is maximized. Public Health will continue to work together with healthcare providers, HAZMAT, law enforcement, and others to enhance relationships and improve communication between the agencies.

Hepatitis C Study

Background on Hepatitis C

Hepatitis C, a liver disease caused by the Hepatitis C virus (HCV), poses a serious health problem worldwide. It is estimated that over 200 million individuals worldwide are chronically infected with Hepatitis C.¹ Though epidemiological studies in different regions of the world have made it evident that the incidence of HCV is higher among less developed nations², HCV is still a problem in developed nations. In the United States, alone, it is the most common chronic blood-borne infection in the country. Approximately 3.9 million Americans, or 1.8 percent of the U.S. population, are infected with HCV.³ For comparison, there are less than a million Americans with AIDS.⁴ Narrowing in on San Bernardino County, though the true prevalence of Hepatitis C is unknown, approximately 60 newly identified cases are being reported each week.

Hepatitis C is often called a “hidden disease” or “silent epidemic” because, unlike the hepatitis A and B viruses, often HCV remains dormant for 10 to 30 years following exposure.⁵ Because of this stage of dormancy, it is reported that 80% of infected individuals are initially asymptomatic.⁶ Symptoms may be confused with the flu or other illnesses and may include fatigue, joint and muscular pain, abdominal swelling, pain in the right upper quadrant, dark urine, loss of appetite, nausea and vomiting, itching, fluid retention, and jaundice. However, most infected individuals feel healthy even though the virus may be slowly destroying the liver. According to the CDC, 75 to 85% of infected persons will develop chronic infection. Of the chronically infected persons, it is estimated that 70% will experience the long-term effect of chronic liver disease and approximately 3% will die from chronic liver disease.⁷ These detrimental effects on the liver, caused by Hepatitis C, make it the leading indication for liver transplants.⁸ To prevent the long-term effects, if detected early, HCV infected individuals can be medically treated with the licensed drugs interferon (administered by injection) and ribavirin (administered orally).⁹ However, both drugs may have a number of side effects. With interferon, side effects may include thinning of hair, fatigue, nausea, vomiting, headaches, fever, and loss of appetite. Ribavirin can cause depression, severe anemia, and birth defects, in addition to the side effects of interferon. Since ribavirin can act as a teratogen, pregnancy should be avoided until six months after treatment is ended. The duration over which treatment should occur varies according to the type of treatment chosen and the individual’s HCV genotype. Treatment in children, though, is still under investigation. In addition to the serious health risk HCV poses, it is, also, very costly. It is estimated that, annually, HCV costs \$5,000,000,000 in lost wages and treatment, which excludes the cost of liver transplants.¹⁰

No vaccine currently exists to prevent infection with HCV and the only way to prevent the disease is to reduce the risk of exposure to the virus.

Hepatitis C virus is spread through contact with the blood of an infected individual. According to prior research, the commonly reported sources of transmission are blood transfusions or solid organ transplants prior to 1992, clotting factors prior to 1987, long-term hemodialysis, and injection drug use. Less commonly, it is spread through accidental needlesticks in the occupational setting, through sharing personal items with household contacts, and through sexual contact and childbirth. However, additional risk factors for infection, such as tattoos or body piercing, incarceration, military service, and a history of cocaine inhalation, are still being studied. It has consistently been reported in numerous studies that 40-50% of HCV infected individuals have no identifiable risk factor for HCV acquisition.¹¹ To determine the major risk factors for HCV and to avert additional viral transmission in the San Bernardino County population, case histories of a sample of HCV positive residents were reviewed and analyzed.

Data Sources and Methods

Survey Instrument

Hepatitis C was researched through literature reviews, the World Wide Web and published books in order to explore all possible risk factors for the disease. After an extensive literature review, a survey instrument was created using Microsoft Word. The survey instrument was divided into the following seven sections: Personal Data, Close Contacts, Lab Data, Clinical History, Epidemiological Data (included all possible risk factors discovered during literature review), Education, and Comments. The survey instrument was reviewed by an epidemiologist and a physician of the San Bernardino County Department of Public Health. Changes were made, as necessary.

Database Development

A database was created using Microsoft Access.

Data Analysis

Data Analysis was done using SPSS v.8.0.

Patient Interviews

Under Title 17, California Code of Regulations Section 2500, Hepatitis C is a reportable disease. As such, San Bernardino Public Health receives reports of its residents that test positive for the Hepatitis C antibody on a weekly basis. Each week twenty new cases for interview were selected from available reports that had been submitted the previous reporting week. Before alphabetizing and numbering each case, each one was reviewed and any that were currently institutionalized were removed from consideration since institutionalized individuals are very difficult to contact and interview. Approximately 24% of the reviewed Hepatitis C positive cases in San Bernardino were currently institutionalized. After removing cases that could not be interviewed, cases for interview were selected using the random number table and the pre-designated number on each case form. Patient interviews were conducted by phone during the Epidemiology Department's operating hours of 8 a.m. to 5 p.m. The predesigned survey instrument was utilized during patient interviews to collect personal data, close contact information, lab data, clinical history and epidemiological data. Personal data included gender, age, country of birth, marital status, highest level of education attained, and current and past occupations. Lab data recorded, when available, included results of Hepatitis C antibody tests (EIA and RIBA), qualitative PCR test, ALT level and genotype. Clinical data, when applicable, included symptoms, physical signs of Hepatitis C, and treatment received. Risk factors assessed under epidemiological data were extensive, including *main risk factors* and *other risk factors*. The risk factors that have been studied in other research were labeled *main risk factors*. *Main risk factors* included tattoos, IVDU, body piercing, shared personal items, cocaine inhalation, blood transfusion, clotting factors, hemodialysis, organ or tissue transplant, sexual contact or household contact with positive case, acupuncture, occupational needle exposure, permanent cosmetic makeup, and vertical transmission. The remaining risk factors were tentatively identified by other researchers and were labeled as *other risk factors* and included major dental work, major surgeries, medical treatment outside the United States, mental facility, incarceration, sex with IVDU, blood exposure, alcohol consumption, sex during menstruation, sex with individual living outside the United States, sexually transmitted disease (STD), sex with an individual with an STD, money or drugs for sex, military service, abortion, cesarean section, manicures or pedicures, street fight involvement, sports participation, gamma globulin shot, and vaccination by pneumatic injector gun. The *main risk factors* and *other risk factors* in this study were combined to include all identified possible risk factors for Hepatitis C.

All risk factors per patient were documented on the data collection form. Patients who denied having any of the risk factors addressed on the survey instrument were categorized as having no known risk factor. At the close of each interview, the conversation was opened up to any questions the patient may have had, and they were offered educational Hepatitis C literature.

Patients that had incorrect or no contact information, and patients that refused to answer questions were considered incomplete interviews. Patients who had already been interviewed by the Epidemiology Program for Hepatitis B or who were previously reported in another year were considered disqualified. Patients that were unreachable during first call attempt were called a second time. If patients were unreachable on the second attempt, a letter requesting the patient to contact the Epidemiology Program was sent out. Patients who were non-respondent at this point were considered lost-to-follow-up. Non-respondents, disqualified patients and patients with incomplete survey data were not included in data analysis.

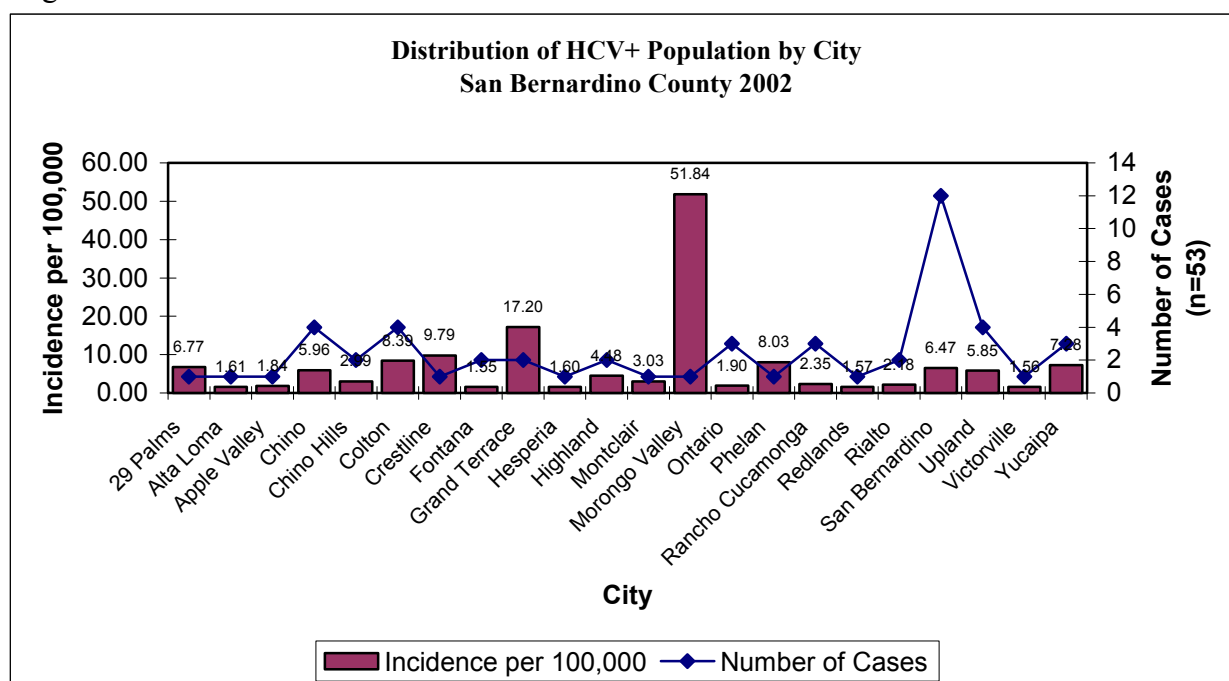
Results

Population Demographics

One hundred and eighteen cases were randomly selected from reported cases. Of this, 65 cases were either disqualified, non-respondent, or lacked correct contact information and were, therefore, not included in the data analysis. Fifty-three cases finished the entire phone interview, were considered completed and were included in the data analysis.

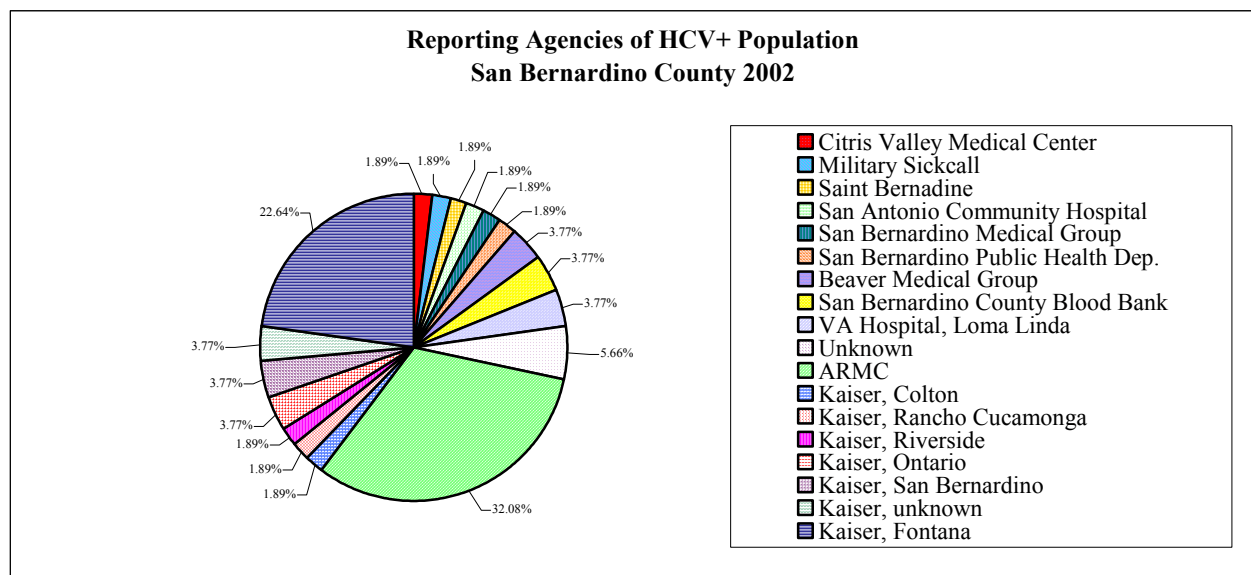
Of the completed cases, the majority, 12 (23%), reside in the city of San Bernardino (Figure 1). Eight other cities had only one resident per city. However, when looking at rates of Hepatitis C per 100,000 in each city, using Census 2000 figures, Morongo Valley had the highest rate with 52 cases per 100,000 people (Figure 1). The city of Grand Terrace followed with 17 cases per 100,000 people (Figure 1). The cities of Fontana, Victorville, and Redlands had the lowest rates of about 2 per 100,000 (Figure 1).

Figure 1.



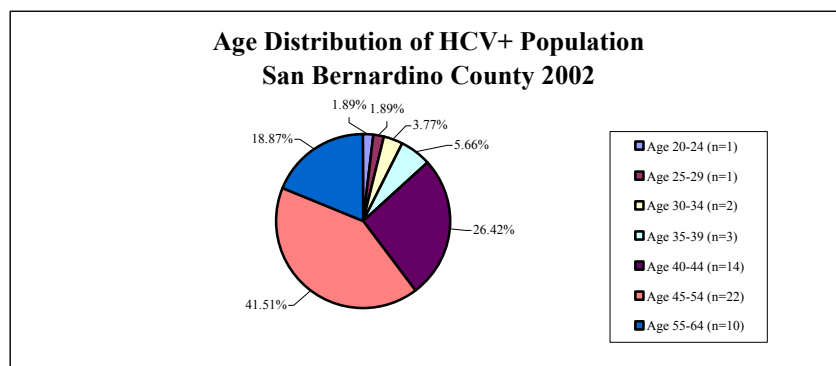
The majority of completed cases were reported by Arrowhead Regional Medical Center and Fontana Kaiser with 17 (32%), and 12 (23%) cases, respectively (Figure 2).

Figure 2.



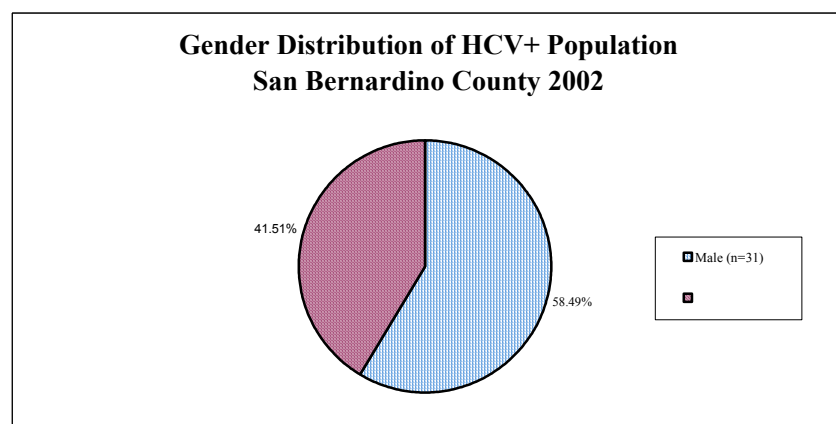
Completed cases were divided into seven age categories: Ages 20-24, 25-29, 30-34, 35-39, 40-44, 45-54, and 55-64. The majority of the cases came from the age categories 40-44 and 55-64 with 14 (26%) and 22 (42%) cases, respectively (Figure 3).

Figure 3.



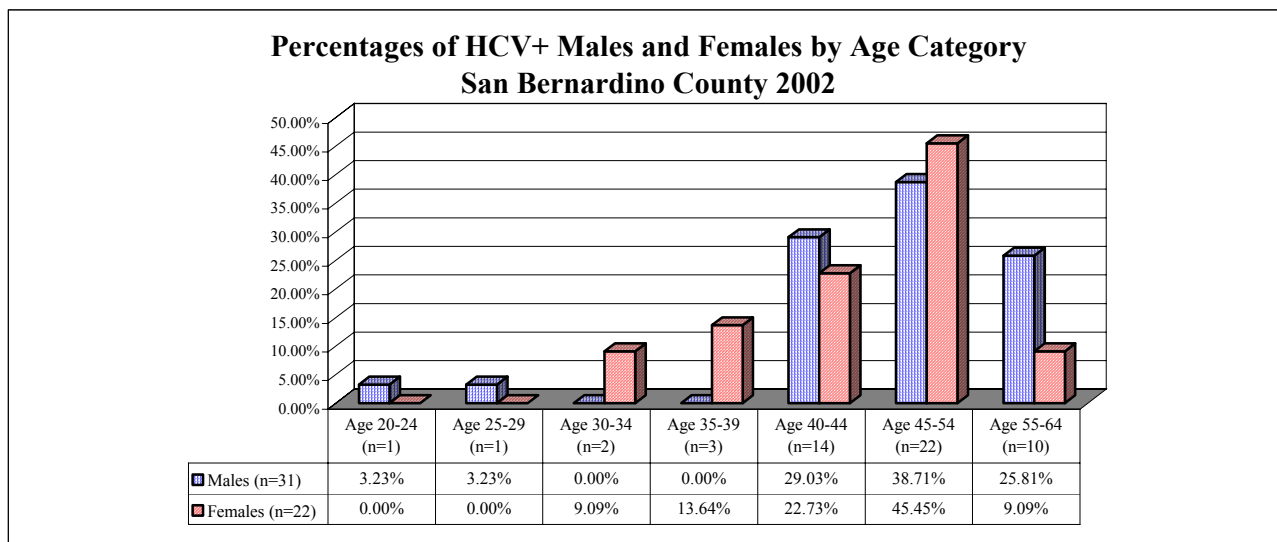
In looking at gender, thirty-one (58%) men and 22 (42%) women were evaluated (Figure 4).

Figure 4.



When separating the men and women out by age category, both gender categories followed the overall age trend with most men coming from age category 45-54 (12, 39%) and most women, also, coming from age category 45-54 (10, 45%) (Figure 5).

Figure 5.



More than half of the completed cases, 30 out of the 53 (57%) were White. The Hispanic group followed with 15 cases (28%). This trend was consistent with the rates of Hepatitis C cases per 100,000 in these race/ethnic groups, using California Department of Finance 2001 figures. Whites had the highest rate with 3.28 cases per 100,000 people followed by the Hispanics with a rate of 2.60 cases per 100,000 people (Table 1). There were not enough people in the Asian/Pacific Islander (n=3), Black (n=3), and Native American (n=1) groups to determine stable rates.

Table 1. HCV Incidences in San Bernardino County per 100,000

Age	All Race Ethnicities			White			Hispanic			Asian/Pacific Islander			Black		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
<1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-24	0.78	1.50	0	1.62	3.14	0	0	0	0	0	0	0	0	0	0
25-29	0.89	1.72	0	1.96	4.03	0	0	0	0	0	0	0	0	0	0
30-34	1.63	0	3.47	3.53	0	7.31	0	0	0	0	0	0	0	0	0
35-39	2.19	0	4.41	2.84	0	5.60	0	0	0	0	0	0	7.54	0	15.10
40-44	9.64*	12.43*	6.87*	7.24*	7.32	7.17	17.15*	23.59	10.19	0	0	0	0	0	0
45-54	9.72*	10.62*	8.81*	10.08*	12.91*	7.23	1.82	0	14.88	7.67	17.04	0	11.19	23.39	0
55-64	8.25*	13.30*	3.28	5.04	10.08	0	15.42	23.34	7.62	31.67	0	60.50	0	0	0
65+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2.99*	3.49*	2.49*	3.28*	3.97*	2.60*	2.53*	2.62*	2.43*	3.15	2.17	4.08	1.91	2.56	1.27

* Rates more stable (n>5).

Symptomatic Versus Asymptomatic

Of the completed cases, 31 (58%) did not experience any of the symptoms for Hepatitis C. However, 22 (42%) cases did experience symptoms (Figure 6). Of the 22 that experienced symptoms, the most commonly reported symptom was fatigue with 16 (73%) cases reporting the symptom (Figure 7).

Figure 6.

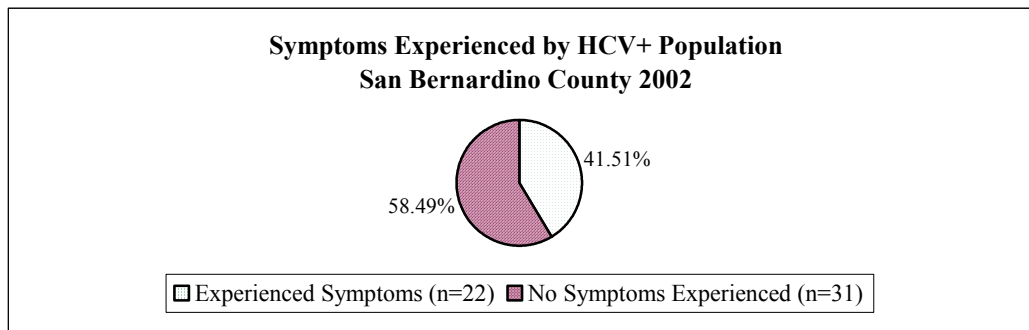
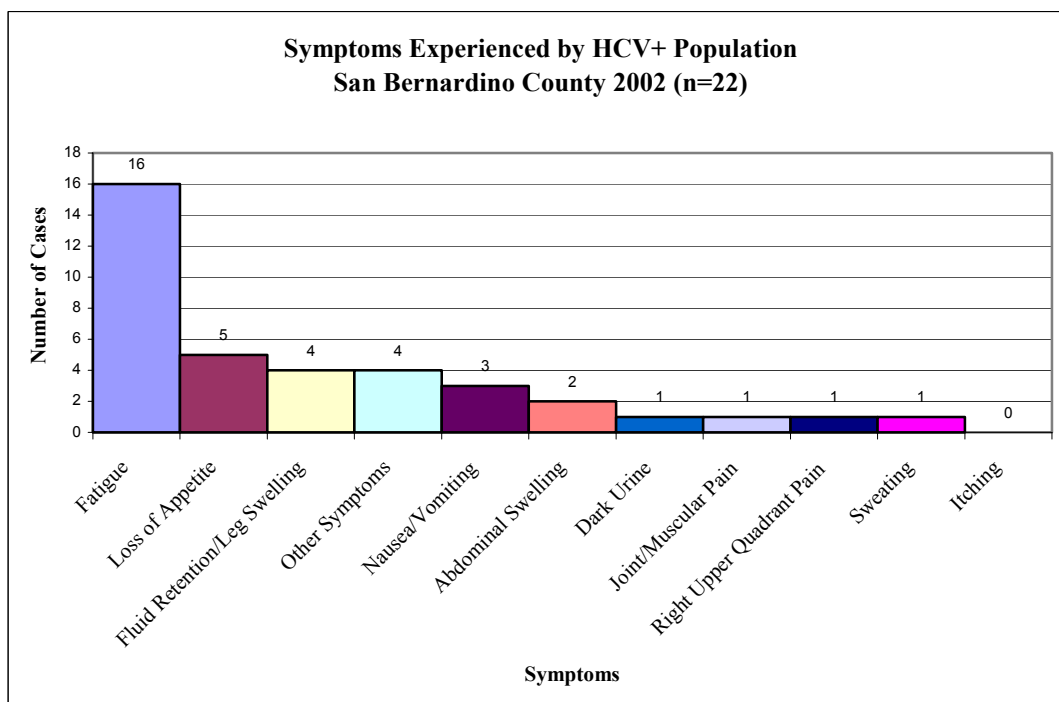


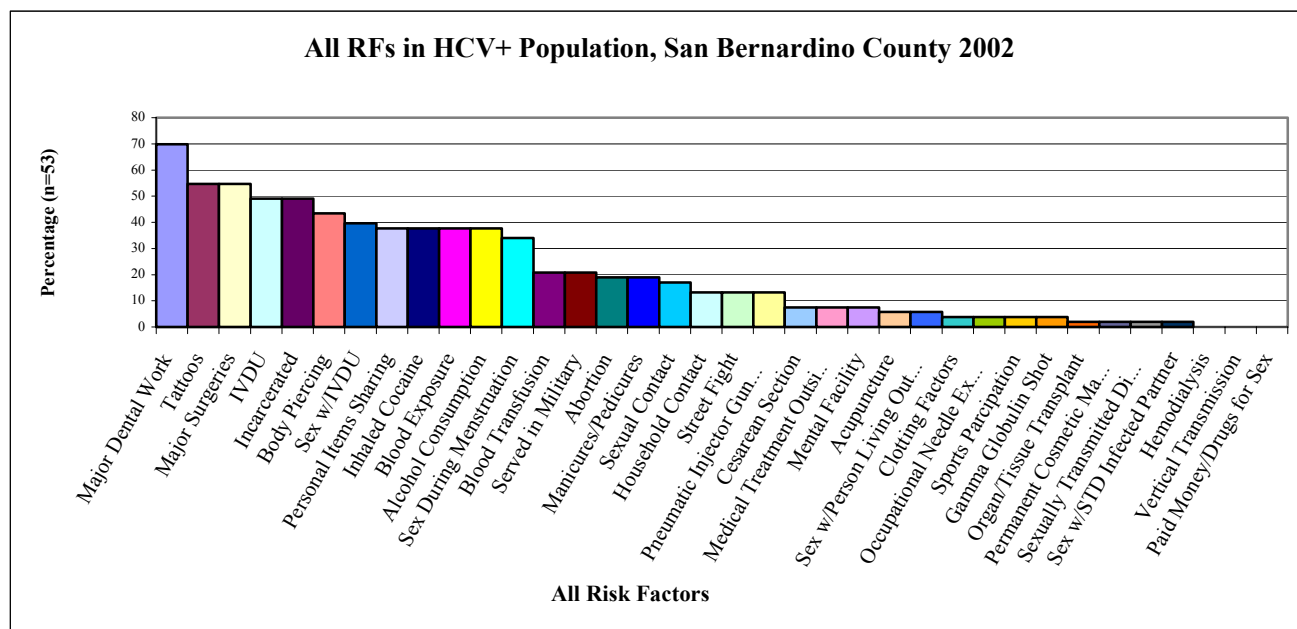
Figure 7.



Risk Factors – Overall View

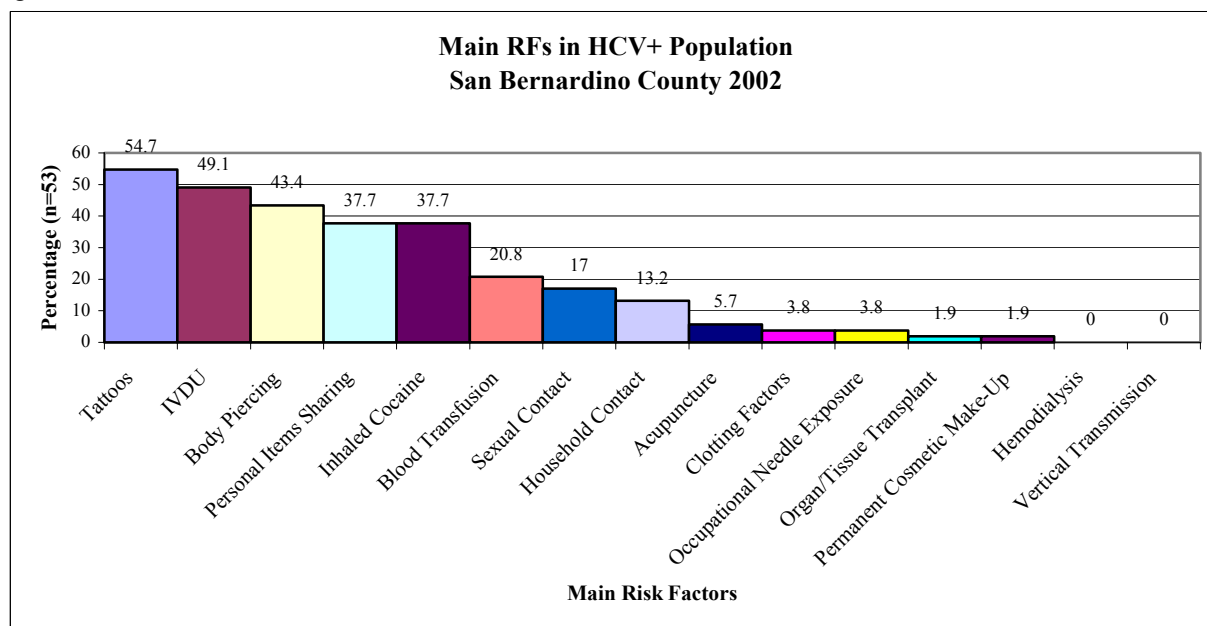
Of all the risk factors studied in our sample, the most commonly reported risk factors were major dental work (70%), tattoos (55%), and major surgeries (55%), all of which are fairly common in the general public. No one listed hemodialysis, money or drugs for sex, or vertical transmission as risk factors that they were exposed to or that they engaged in (Figure 8).

Figure 8.



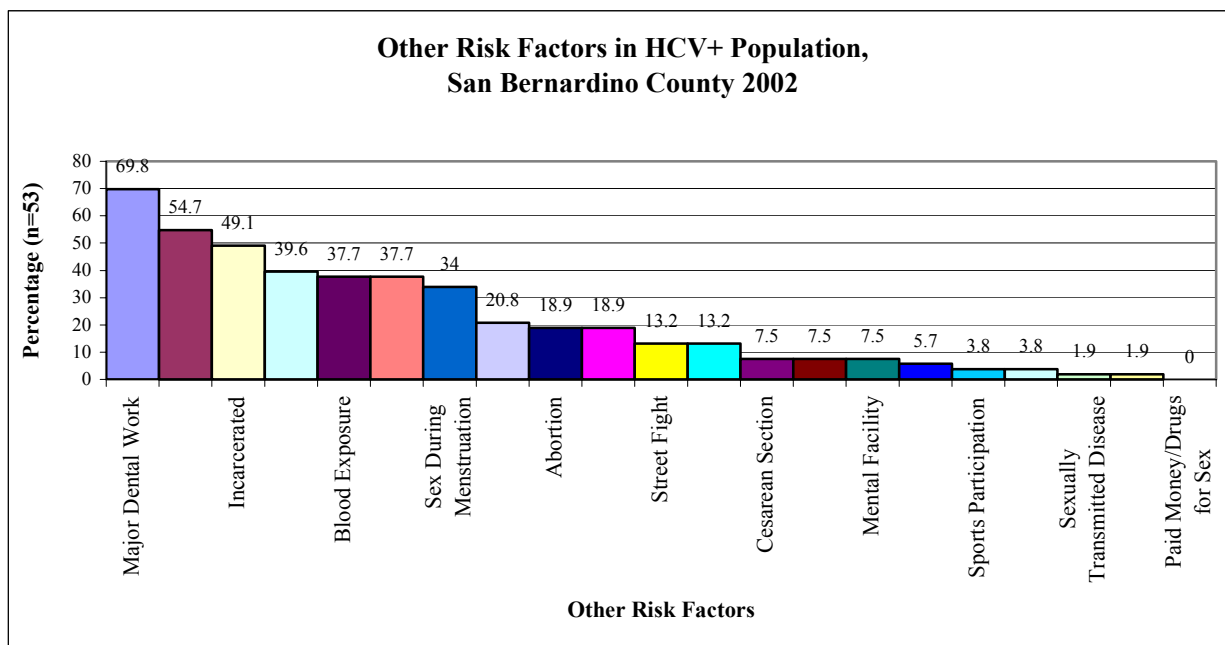
However, when only the main risk factors, those studied in prior research, were looked at, the most commonly reported risk factors were: tattoos (55%), IVDU (49%), and body piercing (43%) (Figure 9). Of the 26 individuals with IVDU as a risk factor, 17 (65%) had shared needles.

Figure 9.



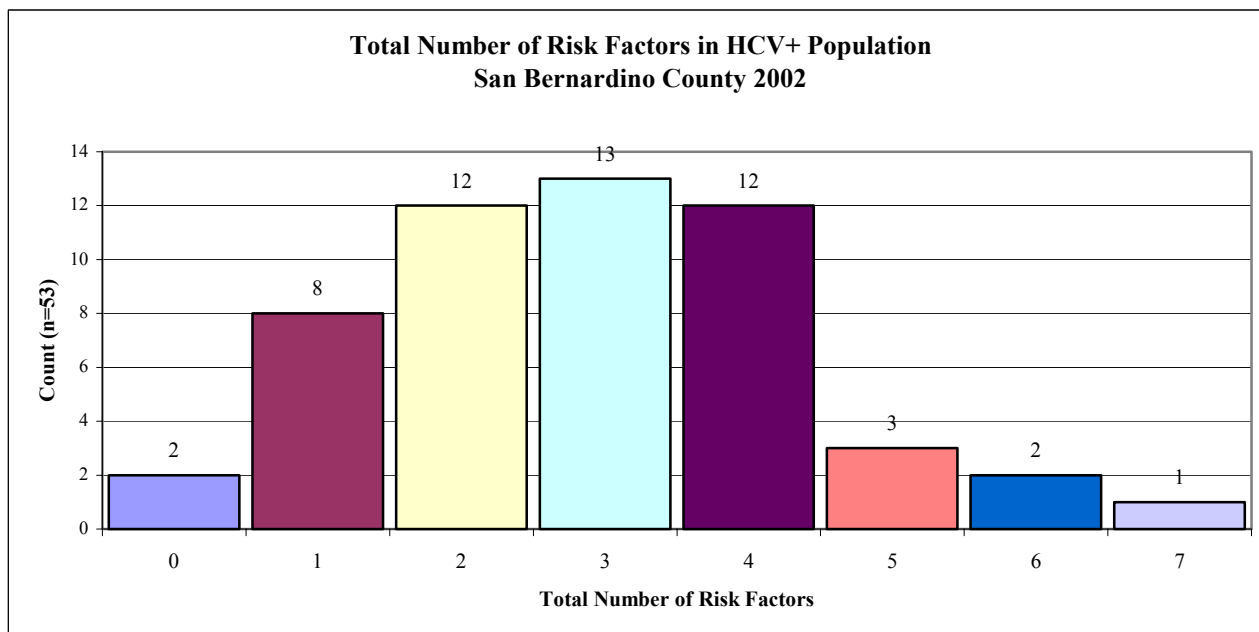
Of the other risk factors studied, the most commonly reported were major dental work (70%), major surgeries (55%), incarceration (49%), and sex with an IVDU (40%) (Figure 10).

Figure 10.



In looking at the total number of all possible risk factors, many subjects (13, 25%) had four total *main risk factors*. Of 53 cases, only two (4%) had no known risk factor (Figure 11).

Figure 11.



The most common risk factors for each race/ethnic group were analyzed. In the White group (n=30), the most common risk factors were IVDU (18, 60%), tattoos (53%), and sex with an IVDU (50%) (Figure 12). In the Hispanic group (n=15), the most commonly reported risk factors included tattoos (11, 73%), incarceration (9, 60%), body piercing (8, 53%), and IVDU (8, 54%) (Figure 13). In the Asian/Pacific Islander (n=3), Black (n=3), and Native American (n=1) groups, there were not enough people in these categories to indicate with any degree of certainty what the most common risk factors were.

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Risk Factors in HCV+ Hispanic Population San Bernardino County 2002 (n=15)

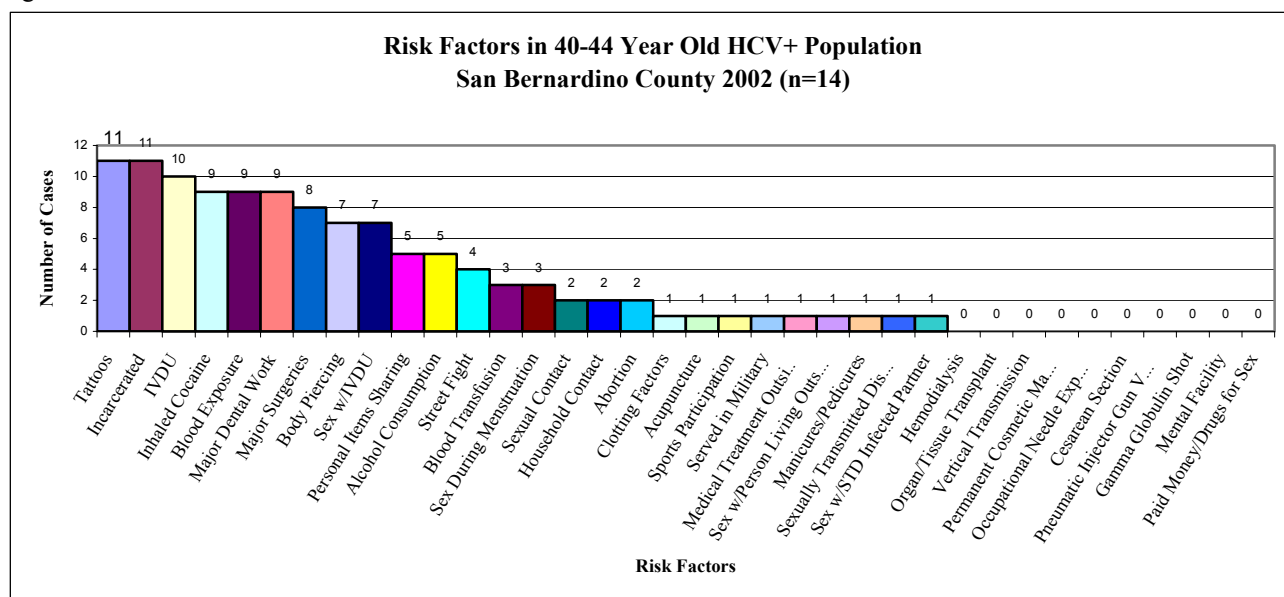
A bar chart titled "Risk Factors in HCV+ Hispanic Population San Bernardino County 2002 (n=15)". The y-axis is labeled "Number of Cases" and ranges from 0 to 12. The x-axis is labeled "Risk Factors" and lists 18 categories. Each bar has its value written above it. The bars are color-coded: Tattoos (blue), Major Surgeries (orange), Body Piercing (green), Inhaled Cocaine (red), Personal Items Sharing (purple), Served in Military (brown), Sex During Menstruation (pink), Household Contact (grey), Medical Treatment Outsid... (light blue), Blood Transfusion (yellow-green), Pneumatic Injector Gun Va... (yellow), Occupational Needle Expo... (dark blue), Street Fight (light green), Mental Facility (cyan), Organ/Tissue Transplant (magenta), Acupuncture (olive), Gamma Globulin Shot (teal), and Sex w/STD Infected Partner (dark red).

Risk Factor	Number of Cases
Tattoos	11
Major Surgeries	10
Body Piercing	9
Inhaled Cocaine	8
Personal Items Sharing	6
Served in Military	5
Sex During Menstruation	4
Household Contact	3
Medical Treatment Outsid...	3
Blood Transfusion	2
Pneumatic Injector Gun Va...	2
Occupational Needle Expo...	1
Street Fight	1
Mental Facility	1
Organ/Tissue Transplant	1
Acupuncture	0
Gamma Globulin Shot	0
Sex w/STD Infected Partner	0

Risk Factors – Categorized By Age Groups

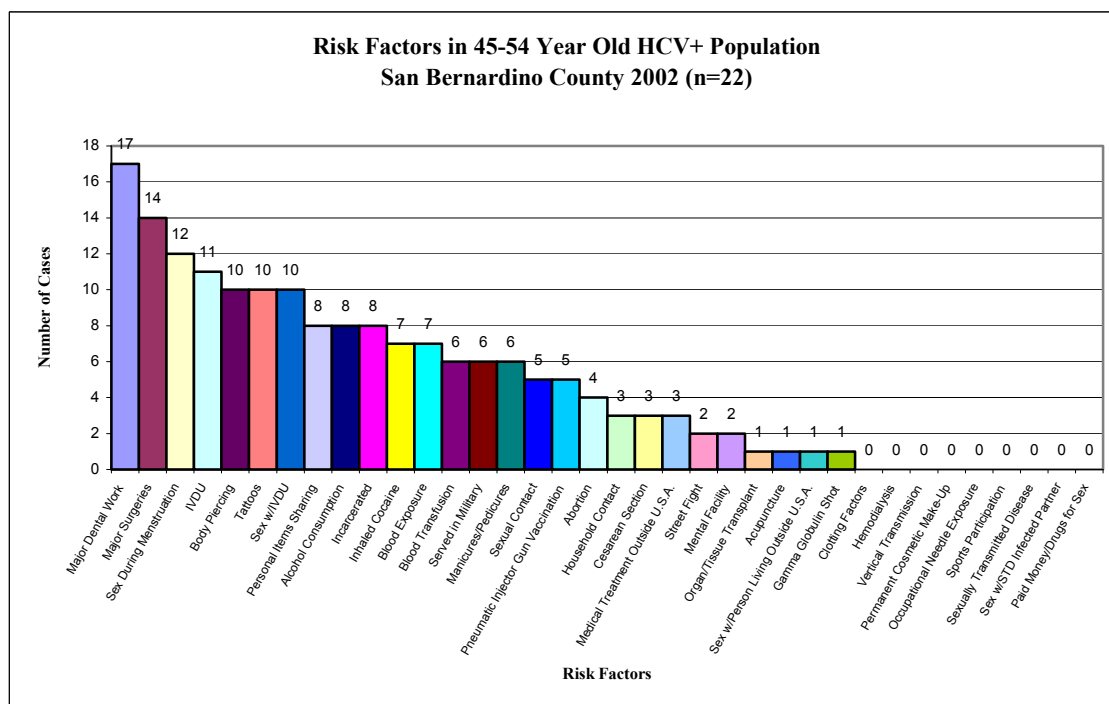
In looking at the different age groups, the most common risk factors that were reported in the 40-44 year old group (n=14) included tattoos (11, 79%), incarceration (11, 79%), IVDU (10, 71%), inhaled cocaine (9, 64%), and blood exposure (9, 64%). (Figure 14).

Figure 14.



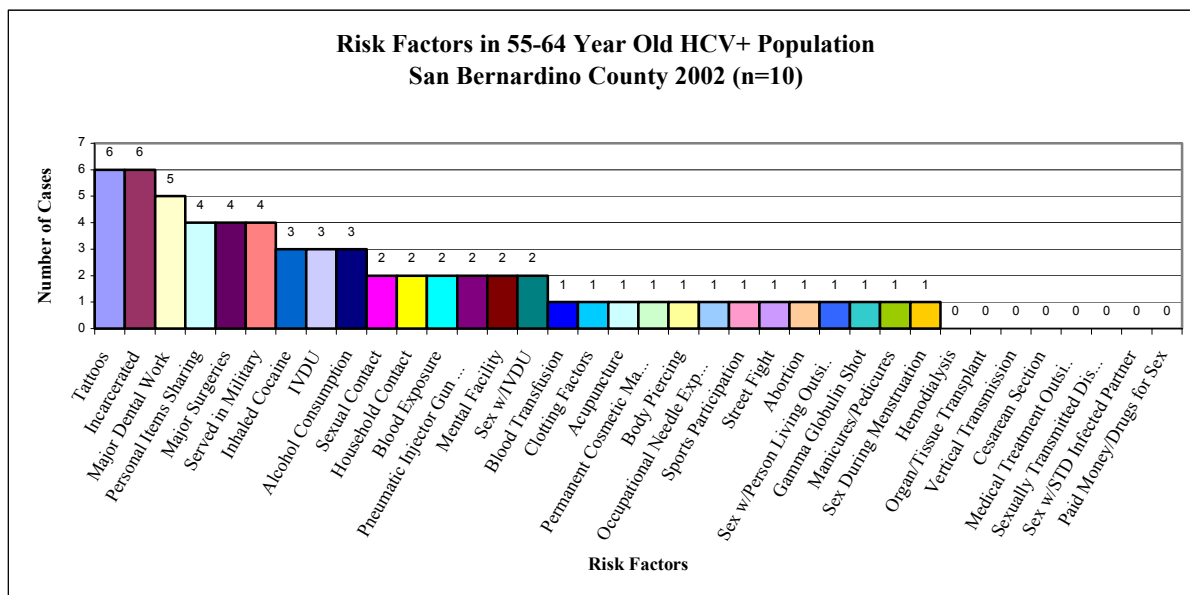
In the 45-54 age group (n=22), the more commonly reported risk factors included sex during menstruation (12, 55%), IVDU (11, 50%), body piercing (10, 45%), tattoos (10, 45%), and sex with an IVDU (10, 45%) (Figure 15).

Figure 15.



In the 55-64 age group (n=10), the more commonly reported risk factors included tattoos (6, 60%) incarceration (6, 60%), personal items sharing (4, 40%), and military service (4, 40%) (Figure 16). In the age groups 20-24 (n=1), 25-29 (n=1), 30-34 (n=2), and 35-39 (n=3) there were not enough people to indicate with any degree of certainty what the most common risk factors were.

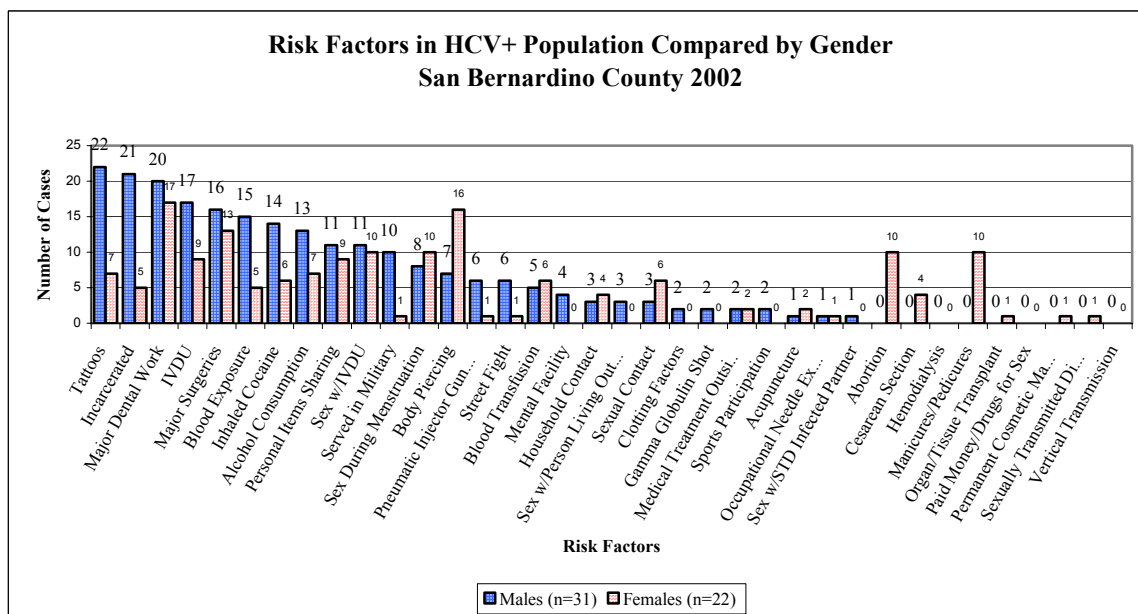
Figure 16.



Risk Factors – Categorized By Gender

In looking at the male population (n=31), the most commonly reported risk factors included tattoos (22, 71%), incarceration (21, 68%), and IVDU (17, 55%) (Figure 17). The most commonly reported risk factor among the female population (n=22) was body piercing (16, 73%). Abortions, manicures/pedicures, sex during menstruation, and sex with an IVDU followed with 45% of the females having each of these risk factors. IVDU was reported in 41% of the females and 32% reported both tattoos and alcohol consumption. (Figure 18).

Figure 17.



Discussion

Of the reportable conditions according to Title 17, California Code of Regulations §2500, Hepatitis C has continuously been the second most commonly reported illness in San Bernardino County. As such, it is pertinent that to have an understanding of the infected population in order to prevent its spread and to decrease morbidity and mortality among the county residents.

Among the most commonly reported risk factors were major dental work and surgeries. However, such risk factors are likely to be quite prevalent among San Bernardino County residents. With current instrument sterilization practices in the United States, major dental work and surgeries do not have a clear biological basis and may simply be indicators for other health problems. Only four of the cases had received medical treatment in other countries (Mexico-2, Philippines-1, and Cuba-1). So, these risk factors were not focused on. In developing countries, however, these risk factors may have significance since instrument sterilization practices are not as advanced.

It is important to note that regardless of categorizing by age, gender, or race/ethnicity; tattoos and IVDU showed up as the most commonly reported risk factors in all, but one (age category 55-64), categories. These findings are consistent with other studies that have associated tattooing and IVDU^{12,13,14} as main risk factors for HCV.

According to the CDC, IVDU accounts for most HCV transmission in the United States.¹⁵ As many as 90% of IV drug users are infected with HCV after five years of injecting. Of the 26 reported IV drug users, 65%, at one point in time, had shared a needle putting them at risk for contracting HCV and other bloodborne infections. Of the reported IV drug users, 42% fall into the 45 to 54 year-old age group, the category wherein 45% of sampled HCV positive cases are in. Of these IV drug users, 73% reported their first incidence of IVDU between the years 1965 to 1969 (Table 2), a time period when experimentation with drugs was at a peak. Though it may be late to address the dangers of drug use with this age category, younger groups may be faced with the social pressures of drug experimentation. Current drug users of all ages must be educated on the dangers of sharing needles so that the prevalence of HCV and other blood borne infections in the population can be reduced.

Table 2: Year of First IVDU Among the 45 to 54 Year-Old Age Group (n=11)

Year of First IVDU	Count (%)
1965-1969	8 (72.73%)
1970-1974	1 (9.09%)
1975-1979	1 (9.09%)
1980-1984	1 (9.09%)

The high association of tattoos with HCV could be attributed to the rapid popularity of tattooing in the United States that began in the late 1980s and early 1990s. During that time, tattooing was transformed from a stigmatized practice to a fashionable expression of individuality, according to a sociologic study of tattooing by Sanders.¹⁶ With the increasing trend, however, laws that established hygienic standards to regulate commercial tattoo parlors were established. Though these laws exist, it is difficult for health departments to monitor and enforce such standards. A 1998 survey of state health departments found that only 30% of the 50 states had policies for regulating commercial tattoo parlors in effect, 36% had varying regulation at the city or county level, while 34% of states had no regulatory activity.¹⁷ Aside from commercial parlors, individuals may get tattoos while in prison or they may be done at home. In such instances, there is the possibility of using HCV-contaminated needles during the procedure. To help prevent the

spread of HCV from tattoos, state and local health departments need to enforce standards for tattoo parlors and monitor their activity to ensure proper hygienic practices. In addition, education regarding the spread of HCV and other bloodborne infections, through tattooing, should be available in prisons and schools.

Aside from the risk factors discussed above, there were other risk factors that were reported frequently. Though there may be confounding by IVDU and tattoos, these additional risk factors will be discussed.

In the study 40-44 year-olds, 64% reported cocaine inhalation. A 1996 study published in the New England Journal of Medicine reported that intranasal inhalation of cocaine appeared to be a risk factor for HCV infection in the United States.¹⁸ However, a 2000 study published in Hepatology did not find intranasal cocaine to be an independent risk factor for HCV.¹⁹ When inhalation occurs, it is possible that blood vessels in the nasal cavity may rupture causing exposure to another's blood when sharing equipment. However, further studies must be done to determine whether or not an association between cocaine inhalation and HCV really exists.

Among study 55-64 year-olds, 40% reported both sharing personal items and military service. Though the CDC has reported that the prevalence of HCV is similar in veterans and nonveterans, a 2001 study published in Hepatology concluded that HCV was common in veterans. However, it associated HCV infection among veterans with traditional risk factors for infection and less strongly with combat-related risks.²⁰ Several other studies, in addition, have reported no association of HCV with military service.^{21,22} Sharing toothbrushes, razors, or other personal care articles has been advised against by the CDC because of the possibility of there being infected blood on such items.

Lastly, in study females, 45% reported abortions and manicures or pedicures. Though these risk factors were commonly reported, they are likely to be quite prevalent among the female population. In addition, with existing laws establishing hygienic standards in manicure and pedicure salons and current instrument sterilization practices, these risk factors may have very little significance.

This study had several limitations. A major disadvantage of the analysis is that the prevalence of the risk factors in the Hepatitis C negative population is unknown. With future investigation on the Hepatitis C negative population, it will be possible to compare the risk factors in both unaffected and affected populations. Potential errors in lab data may exist. However, since the antibody test used is only a screening test, there is the chance of false positives. Because of the size of the sample, there was no representative sample in some race/ethnic groups or age groups. Other possibilities for bias include missing a large portion of the study HCV positive working population since the interview calls were completed during common business hours, unwillingness to participate because of age, gender, or race/ethnicity, reluctance to reveal truth regarding sensitive issues, language barriers in cases where interpreters were not available, exclusion of those who were difficult to contact (incarcerated, mental facilities, or homeless), and difficulty in recalling risk factors from past history.

With an overall view of the Hepatitis C positive residents in this county, target risk factors have been identified: IVDU and tattoos. By providing education on Hepatitis C and IVDU, having drug treatment programs readily available, and enforcing standards for tattoo and piercing parlors, morbidity and mortality from HCV can be reduced and its spread prevented.

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Norovirus: An Emerging Pathogen

Viral gastroenteritis accounts for a large percentage of sporadic and outbreak-related illnesses worldwide. Due to a lack of a widely available test, the etiology is among the most difficult to confirm by laboratory methods. This study retrospectively reviewed food borne and other types of outbreaks reported as gastroenteritis of unknown etiology from 1997-2001 in San Bernardino County. Using clinical and epidemiological criteria developed by Centers for Disease Control and Prevention (CDC) researchers, these gastroenteritis outbreaks were evaluated for possible reclassification as due to one type of virus, Norovirus (NLV).

Background

The etiology of gastroenteritis can include bacteria, viruses, parasites, or other medical conditions. The most common viral causes include rotaviruses, adenoviruses, astroviruses, and members of the Norovirus family.

Noroviruses (NLV) are a group of several viruses in the family *Caliciviridae* that are important causes of food and water borne illness worldwide. CDC estimates there are 23 million illnesses yearly in the United States, 50,000 hospitalizations, and 300 deaths. (Centers for Disease Control and Prevention [CDC], 2002a) Since 1972 when they were first identified during an outbreak in Norwalk, Ohio, NLV has been associated with 42-96% of food and waterborne outbreaks thought to be caused by viruses. (Kaplan, Feldman, Campbell, Lookabaugh & Gary, 1982) More recent estimates attribute 90% of all nonbacterial outbreaks of gastroenteritis in the US to NLV (Greenberg, 2001) and 50% of all food borne gastroenteritis outbreaks. (CDC, 2003)

Symptoms

The most common symptoms reported of NLV infection are nausea, abdominal cramps, chills, myalgias, headache and vomiting and/or diarrhea. Vomiting is more commonly found in children than in adults. Diarrhea is generally four to eight nonbloody, loose to watery stools over 24 hours. Fever of 101-102 degrees F occurs in about 50% of cases. Very young or older individuals may suffer from dehydration, however most recover completely. Increased rates of infection and more severe illness have been associated with blood type O in volunteer studies. (Hutson, Atmar, Graham, & Estes, 2002)

NLV outbreaks are frequently characterized by short incubation periods (1-2 days), recovery within 12-60 hours and high numbers of secondary cases. These viruses are thought to be highly contagious due to a low infective dose (<100 particles), asymptomatic shedding as long as two weeks, resistance to chlorine, and environmental stability.

Much of the available information regarding the incubation period, infective dose and duration of illness comes from volunteer studies and outbreak investigations. In one study where volunteers were orally inoculated with NLV, 82% became infected and 68% developed symptoms. The peak in viral shedding occurred 25-72 hours after inoculation. Many of the volunteers still had detectable virus in their stool 7 days after inoculation. (Graham et al., 1994) Based on volunteer testing, short-term immunity of several months to a similar strain is thought to develop.

(Greenberg, 2001) This may also explain the high attack rates seen across all age groups in an outbreak.

Transmission

Viruses of the *Calicivirus* family are transmitted by consumption of food or water contaminated by an ill individual, direct person-to-person contact with saliva, vomit or aerosolized droplets, or by fomites. NLV illness has been associated with consumption of sandwiches (Parashar et al., 1998), salads, raspberries (Ponka, Maunula, von Bonsdorff, & Lyytikainen, 1999), commercial ice, chocolate icing and oysters (CDC, 1994). Chadwick and McCann (1994) correlated illness in health care workers in a nursing home outbreak with exposure to patients who were vomiting but not in nurses who cleaned vomit or feces. After an outbreak in a hotel restaurant was associated with a diner who vomited during a meal, Marks et al. (2000) demonstrated an inverse relationship between distance from the index case during the meal and illness. No foods served at the meal were associated with illness.

Very large outbreaks of NLV due to contact with contaminated water have been reported. Swimming in pools or lakes contaminated by the virus has been associated with transmission. (Baron et al., 1982) In July 2000, 344 tourists and staff at an Italian resort became ill with NLV after a breakdown in the water system. Attack rates were highest in staff that engaged in water sports, and illness was associated with beach showers and consuming ice. (Boccia et al., 2002)

Outbreaks have been attributed to both pre-symptomatic and post-symptomatic food handlers. The highest risk foods include ready-to-eat foods and semi liquid food that is mixed and spread among many servings, such as frosting or salad dressing. Lo et al. (1994) investigated a multi-hospital outbreak involving 81 patients and 114 staff associated with eating turkey sandwiches and tuna salad. One of the food handlers became ill the day after preparing the salads. Her child had also been ill in the previous two days. In another outbreak, an asymptomatic food handler made 48 of 82 attendees at a restaurant Christmas party ill when he prepared the salad and subsequently became ill 30 minutes after the end of his shift. (Gaulin, Frigon, Poirer, & Fournier, 1999) Parashar et al. (1998) described an outbreak among employees of a manufacturing company linked to a food handler who had been ill four days before the meal was prepared. This employee tested positive for NLV 10 days after resolution of illness, as did a second asymptomatic food handler. A separate outbreak at a deli bar at a Texas university caused 125 students to become ill. The foodhandler who prepared the sandwiches had an infant ill with watery diarrhea at home. Stool specimens from the students, the infant, and the deli ham had the same RT-PCR sequence analysis. (Daniels et al., 2000) In a 1994 United Kingdom outbreak, bakery plant employees and individuals from the community became ill with NLV. Illness in the employees was associated with drinking water at the bakery, while illness in the community was associated with eating custard slices prepared by the bakery. (Brugha et al., 1999)

Environmental contamination has also played a role in outbreaks of NLV. Patterson, Haswell, Fryers and Green (1997) described an outbreak at a wedding held in a hotel where the kitchen assistant vomited into a sink used for preparing vegetables. The sink was sanitized with a chlorine preparation and subsequently used to prepare potato salad. More than 50% of the wedding guests became ill and the potato salad was statistically associated with illness.

Settings

Outbreaks have occurred in several settings, including camps (CDC 2001a), military actions (CDC 2002a), cruise ships, hospitals (Lo et al., 1994), nursing homes, weddings (Patterson et al., 1997), conferences, hotels (Cheesbrough, Green, Gallimore, Wright & Brown, 2000), daycare centers (Grohmann et al., 1991), and among players at a football game (Becker, Moe, Southwick, & MacCormack, 2000). Camps, cruise ships, military and nursing homes are among the most common settings reported due to the close living quarters. Nursing home residents may suffer from higher attack rates due to reduced personal hygiene, incontinence and decreased mental acuity. Cruise ships dock in ports where water and food quality may be substandard. Outbreaks lasting longer than 12 cruises on one ship have been reported as new groups of susceptible individuals board every few weeks. (Ho et al., 1989)

Reservoirs

Generally these viruses are considered to have as their only reservoir humans, however recent research potentially identifies an animal source. Van der Poel et al., (2000) found NLV in veal (44%) and in pigs (2%) when testing pooled stool samples from pig, chicken, dairy cow and veal calf farms. Transmission from animal to human has not been proven however.

Seasonality

Both sporadic cases and outbreaks of NLV demonstrated a seasonality of occurrence in some reports. Mounts et al. (2000) reviewed literature describing surveys of NLV-related gastroenteritis. In 10 of 12 studies, a cold weather peak was demonstrated. Other studies have not demonstrated a cold weather increase in outbreaks. (Kaplan, Gary, et al., 1982)

Diagnosis

Diagnosis of the illness is based on clinical evaluation in most settings and limited to the general category of viral gastroenteritis. The white blood cell count is generally normal, with no red or white blood cells found in the stool. Stool or vomitus can be tested by detecting viral RNA by reverse transcription polymerase chain reaction (RT-PCR), or visualization of the virus by electron microscopy (EM). Testing is most effective when stool is collected 48-72 hours after onset. Collection of acute and convalescent blood specimens may show an antibody rise. At this time, PCR is limited to some state health departments and reference laboratories. Both PCR and EM are available in certain situations through the California State Viral and Rickettsial Laboratory. NLV is only rarely detected in water, food and environmental specimens. Molecular epidemiology will play a larger role in future outbreaks tying isolates from ill persons in multiple geographic locations to isolates from food items. Molecular sequences from NLV isolates are stored in a nationwide database called CaliciNet that can be used to link cases and sources of infection.

Prevention

The most effective prevention of NLV infection involves limiting contamination of food and water with stool and virus. Preventing spread of NLV infection includes hand washing after using the restroom, before eating and before preparing meals. Food handlers with diarrheal illness should be excluded from food preparation, perhaps for longer than the current CDC recommendation of 48-72 hours after recovery. (Parashar et al., 1998). Monitoring of water quality in areas where shellfish are harvested and steps to prevent contamination of harvest waters with human waste are also necessary. Fruits and vegetables subject to sewage

contamination during harvesting or processing need to be carefully washed before consumption. During an outbreak, institutional settings such as hospitals, nursing homes and daycare centers benefit from increased environmental sanitation and education of patients and staff regarding hygiene. Settings such as camps and cruise ships, where new groups of susceptible individuals periodically arrive during an ongoing outbreak may consider closure until environmental sanitation is completed and the ability of staff to spread the infection is limited.

Methods

Outbreaks of any illness are reportable to local public health under Title 17, Section 2500 of the California Code of Regulations. Reports are received from citizens, emergency room personnel, private providers, Environmental Health Services (EHS) staff, other agencies and the facility itself. Epidemiology and EHS programs jointly investigate groups of illnesses related to meals prepared in restaurants, fast food establishments, delis, caterers, camps and private homes. Outbreaks are also investigated in other settings including skilled nursing facilities (SNFs), hospitals, jails, and schools. Reports are generated which describe the numbers of illnesses, the predominant symptoms, ages and gender of the ill persons, the results of any testing, food item associated with illness if identified, and the conditions that facilitated the spread of the illnesses.

For this study, all NLV and gastroenteritis outbreaks of unknown etiology in San Bernardino County reported between 1997 and 2001 were reviewed. Data was collected from each outbreak including the date of occurrence, setting, types of symptoms and duration of individual illnesses, number of people reporting symptoms, hospitalizations and deaths, and the mode of transmission. Summary data generated during the outbreak investigation was also noted, including incubation period, median age, duration of the outbreak, the results of any food or stool testing, and the implicated food or other vehicle.

An outbreak is defined as an increase above expected rates for a particular illness. A food borne illness outbreak was defined as an outbreak peaking in the first two days among two or more individuals residing in different households and having eaten a common food item. Person to person outbreaks were defined as an outbreak with a peak in onsets occurring after the first two days of onsets and with no vehicle identified. The incubation period, if identified, was calculated by subtracting the time between the suspect meal or other exposure and the onset of illness.

Criteria for Clinical and Epidemiological Diagnosis of NLV Outbreaks

Identifying a pathogen responsible for an outbreak is difficult for several reasons. Delays in reporting of outbreaks to Public Health are common. The percentage of individuals willing to submit a stool specimen for testing drops dramatically once the symptoms subside. In addition, one characteristic of an NLV outbreak is the relatively few number of individuals seeking medical care, depending on the setting. Individuals who do require medical evaluation may not be asked to submit a specimen by the physician. Viral testing is most sensitive when stools are collected within 48-72 hours of onset while the stools are liquid or semi-solid. Newer more sensitive tests might detect the virus 7-10 days after onset, but are also not widely available.

The following criteria were developed by CDC researchers to support identification of NLV outbreaks given very nonspecific symptoms and lack of availability of widespread testing.

Kaplan, Feldman, et al. (1982) reviewed 642 outbreaks of gastroenteritis reported to the CDC to determine the percentage that were consistent with NLV infection. The criteria they developed included 1) vomiting in greater than 50% of cases, 2) stool cultures negative for bacterial pathogens, and (if done) parasitic pathogens, 3) mean or median incubation period (if known) of 24-48 hours, and 4) mean or median duration of illness of 12-60 hours. This criteria was based on earlier work by the authors where they reviewed 38 known NLV outbreaks. Using this criterion they were able to correctly classify as NLV 20 of 26 (77%) known NLV outbreaks reported with sufficient information to make a determination. (Kaplan, Gary, et al., 1982)

Norovirus in San Bernardino County

NLV outbreaks can be very large and use large amounts of Public Health resources. Between 1997 and 2001, nine county outbreaks were confirmed as Norovirus, of which two were food borne and seven were reported as person-to-person outbreaks.

Foodhandlers were implicated in the two food borne illness outbreaks reported between 1997 and 2001. In 1998, 146 of 222 attendees became ill with NLV after attendance at a sports tournament and consumption of several meals prepared by the sponsoring facility. In 2001, county public health personnel investigated an outbreak involving 92 ill high school students and staff attending a dance. Illnesses were associated with consumption of sandwiches and punch prepared by a caterer with a diapered infant on the premises. The median ages of the two outbreaks were 62 and 17 years, respectively. Vomiting, diarrhea, abdominal cramps, and fever were the most common symptoms reported. Symptoms began a median of 38 and 32 hours, respectively, after the event and lasted a median of 36 hours and 24 hours. In these outbreaks 14 and 32 individuals sought medical care, although none were hospitalized. The sports tournament outbreak was presumed to be NLV by antibody testing. The outbreak among the prom attendees was confirmed to be NLV when seven individuals were found to be positive by PCR for *Calicivirus* testing of their stool.

Of the seven NLV outbreaks reported as person to person spread, five were in skilled nursing facilities (SNF). The number of ill residents ranged from 21 to 76 with a median of 48. The median ages of ill individuals in each SNF ranged from 59 to 87 years. The percentages of ill individuals in this setting reporting vomiting as one of their symptoms ranged from 52.0 to 83.3%. Duration of symptoms was one to two days. The outbreaks in SNFs lasted a range of 4 to 21 days.

In 2001, Public Health investigated an NLV outbreak at a camp in the mountains where 52 children and adults became ill due to NLV spread person to person given limited hand washing in the rustic environment. Ill individuals reported vomiting as a symptom 61.5% of the time with a median duration of symptoms lasting 31 hours. In December 2001, NLV was identified in a group of 5th grade elementary students who shared a tin of chocolate chip cookies. Consistent with literature reporting more vomiting among children than adults, 86.7% of the ill children reported vomiting as a symptom. The illnesses may also have spread via children vomiting on the bus.

Analysis and Results

A total of 31 gastroenteritis outbreaks of unknown etiology reported between 1997 and 2001 in San Bernardino County were reviewed. One 1997 outbreak was not included in the analysis when the file could not be located. A second outbreak of gastroenteritis in a hospital NICU was not included because the ill patients tested negative for NLV by electron microscopy (EM) and PCR tests conducted in the first 3 days of illness. Of the remaining 29 gastroenteritis outbreaks, 27 were food borne and 2 were non-food borne. The number of outbreaks of gastroenteritis per year ranged from 2 to 11. A detailed list of these outbreaks follows this text in Table 1 on pages 75-76.

The 29 gastroenteritis outbreaks of unknown etiology were compared to the CDC clinical and epidemiological criteria described above. Of these 29 outbreaks, 17 (58.6%) did not meet one, two or three of the CDC criteria including median incubation period, percent of cases reporting vomiting and median duration of illness making NLV an unlikely etiology. Twelve of these outbreaks each had less than 50% of ill persons with vomiting.

Of the remaining outbreaks, six (20.7%) met all four CDC criteria to be called NLV. These six outbreaks included five food borne illness outbreaks and one non-food borne. These possible NLV outbreaks were associated with three fast food establishments, one caterer, and one deli. Of the food borne outbreaks, the food associated with illness included sandwiches (3), potato salad, fajitas, and other types of salads which is consistent with the types of foods reported from NLV outbreaks described in the literature. The one nonfood borne illness outbreak that meets CDC criteria occurred in a local hospital ward when nursing and support staff played with an incontinent pediatric patient. These outbreaks occurred in 1999 (1), 2000 (5), and 2001 (1).

An additional 4 of the 29 outbreaks of gastroenteritis of unknown etiology met all 4 of the criteria except for obtaining stool specimens to rule out bacterial pathogens. These four were all food borne illness outbreaks and occurred in two private homes, one fast food establishment, and one caterer. The median age of ill individuals in these outbreaks ranged from 34 to 79 years. A food item was implicated in two of the four outbreaks and included hamburgers and guacamole.

Two additional outbreaks of gastroenteritis of unknown etiology met all four of the criteria but were missing an incubation period. These outbreaks were both in camps where multiple meals and other exposures across several days made calculating an implicated vehicle and incubation period difficult.

Of the 29 gastroenteritis outbreaks of unknown etiology reported between 1997-2001, as many as 12 (41.4%) of these may have been due to Norovirus. These possible NLV outbreaks include 11 food borne and 1 non-food borne. If added to existing known NLV outbreaks, the total number of outbreaks due to NLV increases from 9 to 21 between 1997-2001 and the number of food borne outbreaks increases from 2 to 11. Of the 11 food borne outbreaks possibly due to NLV, 9 were in facilities regulated by County Environmental Health Services, including 5 fast food or other restaurants, 2 caterers, 1 deli and 1 camp. This may be an important point of intervention where facilities with permits on file with EHS can be reminded of the importance of sending ill employees home during the acute phase of illness and for a minimum of 48 hours after recovery. The remaining two food borne outbreaks were in private homes.

CDC Criteria and Known NLV Outbreaks

The CDC criteria were also applied to known NLV outbreaks reported in San Bernardino County. Of nine NLV outbreaks reported between 1997-2001, three (33.3%) met all four of the CDC epidemiological and clinical criteria described earlier. In two of the remaining outbreaks, stool specimens were not obtained for bacterial testing given a high suspicion of NLV early in the investigation. In six of the outbreaks, an incubation period could not be calculated given a lack of a common source exposure. CDC's clinical and epidemiological criteria did not conflict with any of the information available regarding the 9 confirmed outbreaks. A detailed listing of these NLV outbreaks follows this text on page 77.

Evaluation of CDC Criteria

The CDC criteria for evaluating an outbreak as NLV or not NLV has varying value depending on the outbreak setting. In food borne outbreaks where individual interviews are done, and an incubation period can be calculated, these criteria may be the most valuable where obtaining stool specimens for viral testing is impractical. In large group settings such as skilled nursing facilities and camps where the numbers of ill persons makes individual interviews impractical and the spread is likely to be person to person, the criteria may not be sensitive enough given the requirement of an incubation period.

Limitations

Public Health data suffers from several limitations. Underreporting is a concern for both sporadic reportable illnesses and outbreaks. Directors of camps and other types of facilities frequently express concern about an investigation, citing stomach flu, homesickness and altitude sickness as causes. Late reporting is an ongoing problem and may create problems in the accuracy of the interviews especially food histories. Many of the camp outbreaks involved children visiting the camp for a week or so, then returning to their homes in other counties, making interviews and testing more difficult. Outbreaks in camps are also more complicated investigations requiring interviews about food and activities across several days. In any outbreak investigation, not all ill and well individuals are interviewed, depending on the size of the group and the willingness of the individuals. Individuals may also self-select to be interviewed, especially those who were ill or have a personal interest in the outcome.

Conclusions

Norovirus is an important cause of gastroenteritis in San Bernardino County, causing 16.6% of all outbreaks and 23.0% of gastroenteritis outbreaks reported in this county during 1997-2001. The number of confirmed NLV outbreaks each year increased from zero in 1997 to four each in 2000 and 2001. If the twelve outbreaks considered possible NLV after review of the CDC criteria are added to these totals, NLV may be responsible for as many as 28.8% of food borne outbreaks during 1997-2001 and 41.2% of all gastroenteritis outbreaks.

The CDC criteria will not replace laboratory testing of stool given the difficulties of obtaining all the requested criteria in an outbreak investigation. However, it does provide an indication retrospectively of the burden of NLV. Increased testing capability at the regional level is needed for both sporadic and outbreak-related gastrointestinal illnesses to identify the presence of these

viruses. Tests available at a local public health laboratory would allow for rapid identification of NLV and the implementation of appropriate control measures in a facility. Ability to sequence viruses would allow sporadic illnesses to be linked to each other and the source. In addition, regional testing needs to include the ability to test food and water for NLV to confirm the source of an outbreak

Controlling the spread of NLV within a community will require greater understanding of the epidemiology of NLV, including the magnitude of illness these viruses cause. Communication with high risk facilities such as skilled nursing homes and residential camps on the importance of hand washing and prompt reporting of increases in gastrointestinal illnesses to local public health will prevent substantial numbers of illnesses. Food service facilities need to be aware of the role ill and recovering employees play in transmitting NLV to customers via hands and food. Development of syndromic surveillance systems will increase the ability to detect community outbreaks among urgent care and emergency room patients and facilitate better understanding of patterns of NLV illness.

Table 1. Gastroenteritis Outbreak of Unknown Etiology San Bernardino County 1997-2001

Year	Type of Outbreak	Site Preparation	Median Age	Est. % ill	% Vomiting	Median Duration	Median IP	Bacterial Stool Testing Done	Implicated Food or Vehicle	CDC Criteria Met
CDC Criteria:										
1997 February	Foodborne	Fast Food	Adults	80.0%	>50%	12-60 hours	24-48 hours	Yes		
1997 May	Foodborne				0.00% (80.0% diarrhea)	>24 hours	7.0 hours	No	Rice	No
1997 October	Foodborne	Caterer	44 years	68.4%	61.5%	48 hours	42 hours	No	Unknown	*
1998 May	Foodborne	Home	34 years	26.2%	72.7%	26 hours	42 hours	No	Guacamole	No
1998 May	Foodborne	Restaurant	47.5 years	65.0%	0.0% (84.6% diarrhea)	3.5 days	34.5 hours	No	Salsa, beans, Rice	No
1998 November	Foodborne	Fast food	26.5 years	100.0%	20.0% (100.0% diarrhea)	Unk	9.5 hours	Yes	Unknown	No
1998 December	Foodborne	Restaurant	42 years	54.5%	16.7% (100.0% diarrhea)	30 hours	8 hours	No	Seafood	No
1999 January	Foodborne	Fast Food	42.5 years	100.0%	100.0%	24 hours	2 hours	No	Pizza	No
1999 February	Foodborne	Home	37 years	77.8%	50.0%	24 hours	48 hours	No	Unknown	No
1999 May	Foodborne	Fast Food	40 years	72.7%	12.5% (100.0% diarrhea)	18 hours	7 hours	No	Pinto Beans	No
1999 August	Foodborne	Fast Food	41 years	71.4%	70.0%	36 hours	34 hours	Yes	Potato salad	Yes
1999 August	Foodborne	Camp	17 years	40.9%	22.2% (77.7% diarrhea)	36 hours	Unk	No	Unknown	No
1999 November	Foodborne	Fast Food	79 years	66.7%	100.0%	Unk	31 hours	No	Unknown	No
2000 February	Other	Hospital NICU	2 days	Unk	0.00% (100.0% diarrhea)	48 hours	24 hours	Yes	Unknown	**
2000 February	Other	Daycare	17 months	41.2%	14.2%	5.5 days	Unk	Yes	Person to person	No
2000 May	Other	Hospital	42 years	58.3%	71.4%	24 hours	36 hours	Yes	Incontinent pediatric patient	Yes
2000 April	Foodborne	Restaurant	24 years	38.5%	40.0% (100.0% diarrhea)	48 hours	10.5 hours	No	Shrimp cocktail	No
2000 April	Foodborne	Restaurant	38 years	26.8%	60.0% (26.7%diarrhea)	24 hours	6 hours	No	Chicken picatta	No
2000 May	Foodborne	Fast Food	55 years	100.0%	77.8%	48 hours	25 hours	Yes	Sandwich	Yes

Table 1. Gastroenteritis Outbreaks of Unknown Etiology (-cont-)

Year	Type of Outbreak	Site Preparation	Median Age	Est. Attack Rate	% Vomiting	Median Duration	Median IP	Bacterial Stool Testing Done	Implicated Food or Vehicle	CDC Criteria Met
CDC Criteria:										
2000 June	Foodborne	Restaurant	43 years	87.5%	>50%	12-60 hours	24-48 hours	Yes		
2000 June	Foodborne	Fast Food	38 years	100.0%	42.8%	72 hours	13 hours	Yes	Buffet items	No
2000 June	Foodborne	Fast Food	41 years	100.0%	100.0%	24 hours	28 hours	Yes	Sandwich, burgers	Yes
2000 July	Foodborne	Camp	12.5 years	62.9%	100.0%	60 hours	12.2 hours	No	Hamburger	No
2000 August	Foodborne	Restaurant	29 years	50.0%	42.8%	24 hours	Unk	Yes	Chicken fajitas, beef chow mein	No***
2000 November	Foodborne	Restaurant	35 years	59.5%	0.0% (100.0% diarrhea)	Unk	3 hours	No	Chili verde	No
2000 November	Foodborne	Deli	54 years	87.5%	64.3%	48 hours	14 hours	No	Cheese burritos	No
2001 April	Foodborne	Fast Food	49 years	100.0%	100.0%	3 hours	26 hours	Yes	Roast Beef sandwiches	Yes
2001 May	Foodborne	Fast Food	38 years	54.5%	0.0% (91.7% diarrhea)	48 hours	23 hours	Yes	Rice	No
2001 June	Foodborne	Fast Food	37 years	100.0%	90.0%	48 hours	14 hours	No	Potato salad	No
2001 July	Foodborne	Camp	9 years	39.6%	73.7%	48 hours	31 hours	No	Hamburger	No
2001 July	Foodborne	Caterer	33 years	65.2%	73.3%	12 hours	Unk	Yes	Unknown	No
						38 hours	32 hours	Yes	Salads, fruit, lettuce	Yes

* May 1997 foodborne outbreak not included in analysis as case file could not be located.

** Feb 2000 Hospital NICU outbreak not included in analysis. Infant stools negative by EM for Norwalk-like virus on days 0-3 of illness.

*** June 2000 Camp outbreak. Stools collected on day 8 of illness negative by EM and PCR for Norwalk-like virus but may have been collected too late.

Table 2. Confirmed Norovirus Outbreaks San Bernardino County

Year	Type of Outbreak	Site Preparation	Median Age	Est. % ill	% Vomiting	Median Duration	Median IP	Bacterial Stool Testing Done	Implicated Food or Vehicle	CDC Criteria Met
CDC Criteria:										
1998 October	Foodborne	Restaurant	62 years	65.8%	>50%	12-60 hours	24-48 hours	Yes		
2000 June	Other	SNF	Unk	13.0%	52-72.7%	24 hours	Unk	Yes	Unknown	Yes
2000 July	Other	SNF	68 years	16.1%	67.7%	24-48 hours	Unk	Yes	Person to Person	No
2000 October	Other	SNF	59 years	13.1%	Unk	24 hours	Unk	Yes	Person to Person	No
2000 December	Other	SNF	87 years	26.7%	83.3%	48 hours	Unk	No	Person to Person	No
2001 April	Other	SNF	79.5 Years	16.8%	60.9%	48 hours	Unk	Yes	Person to Person	No
2001 May	Foodborne	Prom caterer	17 years	60.6%	80.5%	24 hours	32 hours	Yes	Punch, sandwich	Yes
2001 August	Other	Camp	Unk	53.6%	61.5%	31 hours	12-24 hours	Yes	Person to Person	Yes
2001 December	Other	Elementary school	11 years	48.4%	86.7%	48 hours	Unk	No	Person to Person	No

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Appendices

A. Healthy People 2010 Progress Report

B. 2001-2002 Outbreaks of Illness

C. List of Reportable Diseases and Conditions

D. California Department of Finance Population Estimates, 2001-2002

E. Footnotes

F. Data Sources

San Bernardino County Reported Communicable Diseases 2002

Appendix A: Healthy People 2010 Progress Report

Comparison of Progress toward Healthy People 2010 Goals for Selected^a Reportable Diseases, San Bernardino County and California

Reportable Disease Rates in 2002			
Reportable Disease	San Bernardino County	California	HP 2010 Goal
AIDS	7.9 per 100,000 population*	6.8 per 100,000 population*	1.0 per 100,000 population
Campylobacteriosis	7.0 per 100,000 population	16.3 per 100,000 population*	12.3 per 100,000 population
<i>E. coli</i> O157:H7 Infection	0.4 per 100,000 population	0.8 per 100,000 population	1.0 per 100,000 population
Gonorrhea	83.3 per 100,000 population*	69.8 per 100,000 population*	19.0 per 100,000 population
<i>H. influenzae b</i>	4 cases*	28 cases*	0 cases in children <5 years
Hepatitis A	1.9 per 100,000 population	4.1 per 100,000 population	4.5 per 100,000 population
Hepatitis B, 2 –18 years	1 case	11 cases*	9 cases
Hepatitis B, perinatal, < 2 years	1 case	40 cases	400 infections
Hepatitis C Acute	0.3 per 100,000 population	0.3 per 100,000 population	1.0 per 100,000 population
Listeriosis	0.2 per 100,000 population	0.2 per 100,000 population	0.25 per 100,000 population
Measles (Rubeola)	0 cases	5 cases*	0 cases
Meningococcal Infection	0.5 per 100,000 population	0.6 per 100,000 population	1.0 per 100,000 population
Mumps	4 cases*	70 cases*	0 cases
Pertussis (under 7 years)	19 cases	478 cases	2,000 cases
Rubella	0 cases	5 cases	0 cases
Salmonellosis	7.6 per 100,000 population*	11.8 per 100,000 population*	6.8 per 100,000 population
Syphilis, Primary & Secondary	0.4 per 100,000 population*	3.0 per 100,000 population*	0.2 per 100,000 population
Tetanus (under 35 years)	0 cases	8 cases	0 cases
Tuberculosis	3.5 per 100,000 population*	7.3 per 100,000 population*	1.0 per 100,000 population

* Denotes indicators that do not meet or exceed HP 2010 goal.

^a Selected diseases consist of those that are included in this report for which HP 2010 comparison can be made to local indicators produced from existing and available data.

San Bernardino County Reported Communicable Diseases 2002

Appendix B: 2001 Outbreak Summaries

NON FOODBORNE OUTBREAKS					
<i>MONTH ONSET</i>	<i>ETIOLOGY</i>	<i>SITE</i>	<i># OF CASES</i>	<i>VEHICLE</i>	<i>MODE</i>
March	Norovirus	SNF	76	Unwashed hands patients and staff	Person to person
August	Norovirus	Camp	52	Unwashed hands staff and campers	Person to person
December	Norovirus	Elementary School	16	Unwashed hands students	Person to person

FOODBORNE OUTBREAKS					
<i>MONTH</i>	<i>ETIOLOGY</i>	<i>SITE</i>	<i># OF CASES</i>	<i>VEHICLE</i>	<i>CONTRIBUTING FACTORS</i>
April	Gastroenteritis, unspecified	Restaurant	7	Rice	None identified
May	Norovirus	Caterer	92	Punch, sandwiches, salads	Ill foodhandler; small child in kitchen area; time and temperature violations
May	Gastroenteritis, unspecified	Fast food restaurant	14	Potato salad	Temperature violations
June	Gastroenteritis, unspecified	Fast food restaurant	10	Hamburgers	None identified
July	Gastroenteritis, unspecified	Camp	60	Unknown	Poor handwashing among campers; kitchen unsanitary; ants and rodents present
July	Gastroenteritis, unspecified	Caterer	15	Salads	Unwashed fruit; cross contamination

San Bernardino County Reported Communicable Diseases 2002
Appendix B: 2002 Outbreak Summaries

NON FOODBORNE OUTBREAKS					
<i>MONTH ONSET</i>	<i>ETIOLOGY</i>	<i>SITE</i>	<i># OF CASES</i>	<i>VEHICLE</i>	<i>MODE</i>
February	MRSA	Hospital NICU	8	Unwashed hands staff	Person to person
February	MRSA	Jail	113	Unwashed hands staff and inmates	Person to person
February	Herpangina	Daycare	5	Respiratory secretions, shared toys	Person to person
March	Gastroenteritis	Camp	105	Unwashed hands staff and campers	Person to person
July	Norovirus	Camp	232	Unwashed hands staff and campers	Person to person
July	Norovirus	Camp	54	Unwashed hands staff and campers	Person to person
September	Gastroenteritis	Daycare	9	Unwashed hands children and staff, shared toys	Person to person
November	Norovirus	Preschool	20	Unwashed hands children and staff, shared toys	Person to person
November	Norovirus	SNF	26	Unwashed hands staff and residents	Person to person
November	Gastroenteritis	Preschool	11	Unwashed hands children and staff	Person to person
December	Norovirus	SNF ¹	44	Unwashed hands staff and residents	Person to person
December	Norovirus	SNF ¹	54	Unwashed hands staff and residents	Person to person
December	Norovirus	SNF	32	Unwashed hands staff and residents	Person to person

¹These two skilled nursing facilities belong to the same chain.

FOODBORNE OUTBREAKS					
<i>MONTH</i>	<i>ETIOLOGY</i>	<i>SITE</i>	<i># OF CASES</i>	<i>VEHICLE</i>	<i>CONTRIBUTING FACTORS</i>
March	Gastroenteritis, unspecified	Fast food restaurant	9	Birthday cake	Improper hygiene
March	Norovirus	Private home	10	Birthday cake	Ill diapered child
June	Norovirus	Private home	18	Unknown	Ill diapered child
October	Gastroenteritis, unspecified	Restaurant	74	Stuffing	Time, temperature violations.
October	Gastroenteritis, unspecified	Restaurant	11	Unknown	Unknown
December	Gastroenteritis, unspecified	Hospital	6	Salad dressing	Unknown
December	Gastroenteritis, unspecified	Restaurant	5	Buffet items	Temperature violations, potential cross contamination

San Bernardino County Reported Communicable Diseases 2002

Appendix C: Reportable Diseases and Conditions



SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC HEALTH

799 East Rialto Avenue, San Bernardino, CA 92415-0010 (909) 383-3050 (909) 386-8325 FAX

REPORTABLE DISEASES AND CONDITIONS

California Code of Regulations

Section 2500. Reporting to the Local Health Authority

1. Communicable Diseases

Acquired Immune Deficiency Syndrome (AIDS)

(HIV Infections only: see "Human Immunodeficiency Virus")

Amebiasis †

Anisakiasis †

Anthrax*

Babesiosis †

Botulism (Infant, Foodborne, Wound)*

Brucellosis*

Campylobacteriosis †

Chancroid

Chlamydial Infections

Cholera*

Ciguatera Fish Poisoning*

Coccidioidomycosis

Colorado Tick Fever †

Conjunctivitis, Acute Infectious of the Newborn,

Specify Etiology †

Cryptosporidiosis †

Cysticercosis

Dengue*

Diarrhea of the Newborn, Outbreaks*

Diphtheria*

Domoic Acid Poisoning (Amnesic Shellfish Poisoning) *

Echinococcosis (Hydatid Disease)

Ehrlichiosis (HGE)

Encephalitis, Specify Etiology: Viral, Bacterial, Fungal,

Parasitic †

Escherichia coli 0157:H7 *

Foodborne Disease † ✧

Giardiasis

Gonococcal Infections

Haemophilus influenzae, Invasive Disease †

Hantavirus Infections *

Hemolytic Uremic Syndrome *

Hepatitis, Viral

Hepatitis A †

Hepatitis B, Cases or Carriers (Specify)

Hepatitis C (Acute or Chronic)

See Note

Hepatitis D (Delta)

Hepatitis, other, acute

Human Immunodeficiency Virus (HIV) (§2641-2643)

reporting is NON-NAME (see www.dhs.ca.gov/aids)

Kawasaki Syndrome (Mucocutaneous Lymph Node

Syndrome)

Legionellosis

Leprosy (Hansen Disease)

Leptospirosis

Listeriosis †

Lyme Disease

Lymphocytic Choriomeningitis †

Malaria †

Measles (Rubeola) †

Meningitis, Specify Etiology: Viral, Bacterial, Fungal,

Parasitic †

Meningococcal Infections *

Mumps

Non-Gonococcal Urethritis (Excluding Laboratory Confirmed

Chlamydial Infections)

Paralytic Shellfish Poisoning *

Pelvic Inflammatory Disease (PID)

Pertussis (Whooping Cough) †

Plague, Human or Animal *

Poliomyelitis, Paralytic †

Psittacosis †

Q Fever †

Rabies, Human or Animal *

Relapsing Fever †

Reye Syndrome

Respiratory Syncytial Virus (RSV) ∞

Rheumatic Fever, Acute

Rocky Mountain Spotted Fever

Rubella (German Measles)

Rubella Syndrome, Congenital

Salmonellosis (Other than Typhoid Fever) †

Scombroid Fish Poisoning *

Shigellosis †

Smallpox (Variola)*

Streptococcal Infections (Outbreaks of Any Type and Individual

Cases in Food Handlers and Dairy Workers Only) †

Swimmer's Itch (Schistosomal Dermatitis) †

Syphilis †

Tetanus

Toxic Shock Syndrome

Toxoplasmosis

Trichinosis †

Tuberculosis †

Tularemia*

Typhoid Fever, Cases and Carriers †

Typhus Fever

Varicella (deaths only)*

Vibrio Infections †

Viral Hemorrhagic Fevers *

Water-associated Disease †

West Nile Virus Infections ✕ †

Yellow Fever *

Yersiniosis †

San Bernardino County Reported Communicable Diseases 2002

Appendix C: Reportable Diseases and Conditions

Section 2500. Reporting (cont'd)

OCCURRENCE OF ANY UNUSUAL DISEASE* - a rare disease or emerging disease or syndrome of uncertain etiology which could possibly be caused by a transmissible infectious agent.

OUTBREAK OF ANY DISEASE* - occurrence of cases of a disease above the expected level over a given amount of time, in a geographic area or facility, or in a specific population group, including diseases not listed in Section 2500.

Note: Guidelines for Reporting Hepatitis C/NANB – When reporting hepatitis C cases, please include HAV IgM, HbsAg, and HbcAb test results, liver enzymes, and date of onset of illness if known.

2. Non-Communicable Disease and Conditions

Alzheimer's Disease and Related Conditions

Disorders Characterized by Lapses of Consciousness

- * To be reported immediately by telephone.
- † To be reported by mailing a report or by telephoning within one (1) working day of identification of the case or suspected case. All other conditions are to be reported within seven (7) calendar days from the time of identification.
- ◇ When two (2) or more cases or suspected cases of foodborne disease from separate households are suspected to have the same source of illness, they should be reported immediately by telephone.
- § HIV infection without identifiers became reportable July 1, 2002. For additional information on reporting HIV infection, see www.dhs.ca.gov/aids
- ∞ RSV became reportable on November 13, 2002 in San Bernardino County.
- * West Nile Virus Infections became reportable on April 09, 2003 in San Bernardino County.

IDB/DHS Effective 04/09/03

Section 2505 and 2612. Notification by laboratories. Laboratories are to report the following diseases:

Anthrax*
Botulism*
Brucellosis*
Chlamydial infections†
Cryptosporidiosis†
Diphtheria†
Encephalitis, arboviral†
Escherichia coli O157:H7 infection†
Gonorrhea†
Hepatitis A, acute infection, by IgM antibody test or positive viral antigen test†
Hepatitis B, acute infection by IgM anti-HBc antibody test†
Hepatitis B, surface antigen positivity (specify gender)†
Human Immunodeficiency Virus (HIV)
Listeriosis†
Malaria†
Measles (Rubeola), acute infection, by IgM antibody test or positive viral antigen test†
Plague, animal or human*
Rabies, animal or human†
Respiratory Syncytial Virus (RSV)
Salmonella†
Smallpox*
Syphilis†
Tuberculosis†
Tularemia*
Typhoid†
Vibrio species infections†
Viral hemorrhagic fever agents*
West Nile Virus Infections ж †

San Bernardino County Reported Communicable Diseases 2002

Appendix C: Reportable Diseases and Conditions

REPORTABLE DISEASES AND CONDITIONS

California Code of Regulations

HOW TO REPORT: Extremely urgent conditions (i.e., anthrax, botulism, cholera, dengue, diphtheria, foodborne disease, plague, rabies, and relapsing fever) should be reported by telephone immediately, 24-hours a day. Other urgent conditions should be reported by telephone during regular business hours. Non-urgent conditions may be reported by telephone or mail on confidential morbidity report (CMR) forms. These forms must be filled out completely. All of the requested information is essential, including the laboratory information for selected diseases on the front of the form. All telephone and mailed reports are to be made to the Epidemiology Program in San Bernardino.

San Bernardino County Department of Public Health

799 East Rialto, San Bernardino, CA 92415-0011

(909) 383-3050 (909) 386-8325 FAX (909) 356-3805 Night and Weekend Emergency

ORDERING CMRs: For the reporting of non-urgent conditions we will supply CMRs to all providers wishing to utilize them. Once or twice weekly you may insert all accumulated CMRs into an envelope and mail them. For a camera-ready copy of the CMR form, contact the San Bernardino office at the daytime phone number.

ANIMAL BITE: Animal bites by a species subject to rabies are reportable in order to identify persons potentially requiring prophylaxis for rabies. Additionally, vicious animals are identified and controlled by this regulation and local ordinances (California Code of Regulations, Title 17, Sections 2606, et seq.: Health and Safety Code Sections 1900-2000). Reports can be filed with the local animal control agency or the County Animal Control Office at 1-800-472-5609 may assist you in filing your report.

LABORATORY REPORTING: Forward a copy of the laboratory report within one day of report to health care provider. Line listings are not acceptable. Forward to the county in which the health care provider is located or to the State Health Officer if out of California. Information which should be included:

Patient Information

- Name
- Date of Birth
- Identification Number
- Address (if known)
- Telephone Number (if known)

Specimen Information

- Result
- Date Taken
- Date Reported
- Accession Number

Provider Information

- Name
- Address
- Telephone Number

PESTICIDE EXPOSURE: The Health and Safety Code, Section 105200, requires that a physician who knows, or who has reason to believe, that a patient has a pesticide-related illness or condition must report the case to the local County Health Department by telephone within 24 hours.

This reporting requirement includes all types of pesticide related illnesses: skin and eye injuries, systemic poisonings, suicides, homicides, home cases, and occupational cases. **Failure to comply with the foregoing reporting requirements renders the physician liable for a civil penalty of \$250.00.** Phone reports may be made to (909) 383-3050.

For occupational exposure there is an additional requirement to send the "Doctor's First Report of Occupational Injury or Illness" to the Department of Health within seven days. Copies of the report form (5021, Rev. 4/92) may be obtained from the same office for future use.

CANCER REPORTING: Under state law (Chapter 841. Statutes of 1985) invasive or in situ malignancies (including CIN III of the cervix), except basal and squamous cell carcinomas of the skin, diagnosed on or after June 1, 1988 which have not been admitted to a California hospital for diagnosis or treatment of cancer, and who will not be referred to a California hospital for diagnosis or treatment must be reported to the County Health Department on a Confidential Morbidity Report (CMR) form. For additional information on cancer reporting requirements, please contact the Cancer Surveillance Program, (909) 558-6170.

San Bernardino County Reported Communicable Diseases 2001-2002
Appendix D: California Department of Finance Population Estimates

San Bernardino County Population by Race/Ethnicity, Sex, and Age: 2001

Age	All Race/Ethnicities			White			Hispanic			Asian/Pacific Islander			Black			Native American		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
<1	32,227	16,468	15,759	10,664	5,450	5,214	16,415	8,392	8,023	1,879	957	922	3,105	1,585	1,520	164	84	80
1-4	127,194	65,010	62,184	43,197	22,071	21,126	63,877	32,689	31,188	7,322	3,722	3,600	12,118	6,179	5,939	680	349	331
5-9	164,933	84,288	80,645	65,710	33,626	32,084	73,218	37,515	35,703	9,171	4,709	4,462	16,017	8,013	8,004	817	425	392
10-14	160,918	81,989	78,929	74,753	38,314	36,439	61,318	31,076	30,242	7,714	4,013	3,701	16,358	8,203	8,155	775	383	392
15-19	141,656	72,515	69,141	68,237	35,027	33,210	51,342	26,292	25,050	7,341	3,787	3,554	13,890	6,962	6,928	846	447	399
20-24	128,567	66,623	61,944	61,552	31,869	29,683	46,527	24,310	22,217	7,007	3,604	3,403	12,549	6,361	6,188	932	479	453
25-29	112,473	58,297	54,176	51,122	26,309	24,813	42,130	22,289	19,841	7,290	3,561	3,729	11,091	5,721	5,370	840	417	423
30-34	122,979	65,315	57,664	56,667	29,298	27,369	45,651	25,438	20,213	7,361	3,549	3,812	12,464	6,560	5,904	836	470	366
35-39	137,261	69,221	68,040	70,397	34,652	35,745	45,186	23,920	21,266	7,560	3,578	3,982	13,263	6,640	6,623	855	431	424
40-44	145,172	72,389	72,783	82,821	40,961	41,860	40,810	21,192	19,618	7,715	3,584	4,131	12,911	6,230	6,681	915	422	493
45-54	226,447	112,981	113,466	138,888	69,692	69,196	54,938	28,048	26,890	13,032	5,868	7,164	17,881	8,552	9,329	1,708	821	887
55-64	121,182	60,171	61,011	79,347	39,661	39,686	25,940	12,824	13,116	6,315	3,009	3,306	8,495	4,133	4,362	1,085	544	541
65+	150,698	64,003	86,695	111,444	46,848	64,596	25,879	11,407	14,472	5,476	2,239	3,237	6,852	3,059	3,793	1,047	450	597
Total	1,771,707	889,270	882,437	914,799	453,778	461,021	593,231	305,392	287,839	95,183	46,180	49,003	156,994	78,198	78,796	11,500	5,722	5,778

San Bernardino County Population by Race/Ethnicity, Sex, and Age: 2002

Age	All Race/Ethnicities			White			Hispanic			Asian/Pacific Islander			Black			Native American		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
<1	33,177	16,954	16,223	10,699	5,468	5,231	17,141	8,763	8,378	1,982	1,010	972	3,187	1,627	1,560	168	86	82
1-4	129,856	66,371	63,485	43,017	21,980	21,037	65,921	33,738	32,183	7,780	3,953	3,827	12,474	6,359	6,115	664	341	323
5-9	164,276	83,956	80,320	61,319	31,440	29,879	76,900	39,358	37,542	9,445	4,841	4,604	15,750	7,868	7,882	862	449	413
10-14	168,667	86,054	82,613	76,258	38,996	37,262	66,046	33,654	32,392	8,432	4,378	4,054	17,135	8,637	8,498	796	389	407
15-19	146,327	74,753	71,574	69,212	35,461	33,751	54,144	27,672	26,472	7,702	3,991	3,711	14,456	7,194	7,262	813	435	378
20-24	134,031	69,694	64,337	63,398	32,888	30,510	49,214	25,868	23,346	7,379	3,792	3,587	13,093	6,664	6,429	947	482	465
25-29	116,803	60,040	56,763	52,641	26,963	25,678	44,143	23,019	21,124	7,768	3,808	3,960	11,430	5,838	5,592	821	412	409
30-34	123,073	65,576	57,497	55,464	28,837	26,627	46,388	25,861	20,527	7,844	3,767	4,077	12,482	6,619	5,863	895	492	403
35-39	135,031	68,429	66,602	66,535	32,835	33,700	46,508	24,804	21,704	7,922	3,743	4,179	13,231	6,624	6,607	835	423	412
40-44	146,011	72,840	73,171	81,700	40,301	41,399	42,329	22,036	20,293	7,920	3,693	4,227	13,168	6,391	6,777	894	419	475
45-54	235,326	117,132	118,194	142,013	71,079	70,934	58,888	30,037	28,851	13,715	6,173	7,542	18,969	9,005	9,964	1,741	838	903
55-64	130,274	64,767	65,507	84,842	42,495	42,347	28,246	13,970	14,276	6,978	3,315	3,663	9,038	4,409	4,629	1,170	578	592
65+	153,526	65,455	88,071	112,097	47,278	64,819	27,239	12,069	15,170	5,885	2,409	3,476	7,203	3,218	3,985	1,102	481	621
Total	1,816,378	912,021	904,357	919,195	456,021	463,174	623,107	320,849	302,258	100,752	48,873	51,879	161,616	80,453	81,163	11,708	5,825	5,883

San Bernardino County Reported Communicable Diseases 2002

Appendix E: Footnotes

- (1) To obtain a copy of the most recent AIDS Program report, please call (909) 383-3060.
- (2) Pelvic Inflammatory Disease (PID) does not include chlamydial PID or gonococcal PID, which are shown separately under chlamydia and gonorrhea respectively. PID cases for which the etiologic agent is determined to be *Chlamydia trachomatis* or *N. gonorrhoeae* are included in the total number of cases of chlamydia and gonorrhea, respectively.
- (3) Diagnosis of cholera is confirmed by isolating *Vibrio cholerae* from feces, and is distinguished from isolation of other *Vibrio* species that also cause gastrointestinal disease and are counted as *Vibrio* Infections in this report. In 2002, the three non-cholera cases due to *Vibrio* infection were caused by infection with *V. parahaemolyticus*, *V. vulnificus*, and *V. alginolyticus*.
- (4) Midway through 1992, penicillinase-producing *Neisseria gonorrhoeae* (PPNG) was no longer tested for in the Public Health Department Laboratory and are thus no longer tallied as a separate category.
- (5) Effective January 10, 1998, invasive *Haemophilus influenzae* occurring in patients 30 years of age and older is no longer a reportable condition.
- (6) Effective December 1, 1998, individuals with hepatitis C antibody who do not meet the criteria to be reported as hepatitis C acute, are to be reported as hepatitis C chronic, at the request of the California Department of Health Services.
- (7) This category of bacterial meningitis does not include *Neisseria meningitidis*, which is reported separately as meningococcal meningitis or meningococemia.
- (8) Meningococcal disease includes both meningococcal meningitis and meningococemia, regardless of the *N. meningitidis* serogroup.
- (9) US data for 2002 was not available at the time this report was published.
- (10) Deleted from the nationally notifiable disease list in 1995.
- (11) Not a nationally notifiable disease.
- (12) Became a California notifiable disease in 1993.
- (13) Became a nationally notifiable disease in 1994.
- (14) Incidence rates calculated using the total number of males in the population as the denominator value.
- (15) Incidence rates calculated using the total number of females in the population as the denominator value.
- (16) Nationally notifiable disease, but data is not published in Morbidity Mortality Tables.
- (17) Became a nationally notifiable disease in 1995.
- (18) Non-name reporting of Human Immunodeficiency Virus (HIV) with unique identifiers became mandatory on July 1, 2002.
- (19) Became a nationally notifiable disease in 2000.

San Bernardino County Reported Communicable Diseases 2002

Appendix F: Data Sources

Communicable Disease (CD) Incidence Data

(For all communicable diseases except AIDS, *Chlamydia*, *Gonorrhea*, non-gonococcal urethritis, pelvic inflammatory disease, *Syphilis*-all stages, and tuberculosis)

San Bernardino County	<u>CD Data (1980-2002)</u> : San Bernardino County CD records. <u>Tuberculosis Data (1980-2002)</u> : San Bernardino County Tuberculosis Control Program records.
California	<u>CD Data (1990-1998)</u> : <i>Communicable Diseases in California</i> , California Department of Health Services; <u>(1999-2002)</u> : Direct communication with the California Department of Health Services (Provisional). <u>Tuberculosis Data (1990-2002)</u> : Direct communication with the California Department of Health Services Tuberculosis Control Branch.
United States	<u>CD Data (1991-2001)</u> : US Department of Health and Human Services. (May 2, 2003). <i>Summary of Notifiable Diseases, United States, 2001</i> . Morbidity and Mortality Weekly Report, Vol. 50, No. 53.

Sexually Transmitted Disease (STD) and AIDS Data

(For AIDS, *Chlamydia*, *Gonorrhea*, non-gonococcal urethritis, pelvic inflammatory disease, and *Syphilis*- all stages)

San Bernardino County	<u>STD Data (1991-2002)</u> : San Bernardino County CD records. <u>AIDS Data (1991-2002)</u> : San Bernardino County AIDS Program records.
California	<u>STD Data (1990-97)</u> : California Department of Health Services. <i>Sexually Transmitted Disease in California, 1996 & 1997</i> . Sexually Transmitted Diseases Control Branch. Available: http://www.dhs.ca.gov/dcdc . <u>STD Data (1997-2002)</u> : Direct communication with the California Department of Health Services, STD Control Branch records (Provisional data). <u>HIV Data (1991-2002)</u> : California Department of Health Services Office of AIDS records.
United States	<u>STD Data (1998)</u> : US Department of Health and Human Services. (September, 1999). <i>Sexually Transmitted Disease Surveillance, 1998</i> . Centers for Disease Control and Prevention, Division of Sexually Transmitted Diseases Prevention. <u>STD Data (1999-2001)</u> : US Department of Health and Human Services. (May 2, 2003). <i>Summary of Notifiable Diseases, United States, 2001</i> . Morbidity and Mortality Weekly Report, Vol. 50, No. 53.

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California	<u>Population Data (1990-2002)</u> : State of California (June, 2003). <i>Race/Ethnic Population with Age and Sex Detail, 1970-2040</i> . Department of Finance. Available: http://www.dof.ca.gov/html/Demograp/repndat.htm .
United States	<u>Data (1990-2002)</u> : US Department of Health and Human Services (May 2, 2003). <i>Summary of Notifiable Diseases, United States, 2001</i> . Morbidity and Mortality Weekly Report, Vol. 50, No. 53.

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